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JOHN M. CLARKE Director
CHARLES H. PECK State Botanist

Bulletin 94

BOTANY 8

REPORT OF THE STATE BOTANIST 1904

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ALBANY
NEW YORK STATE EDUCATION DEPARTMENT
1905



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EDUCATION DEPARTMENT

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New York State Education Department

Science Division, Jan. 16, 1905

Hon. Andrew S. Draper

Commissioner of Education:

MY DEAR SIR: I have the honor of submitting to you the following report of work done in the botanical department of the State Museum for the year 1904.

Very respectfully yours

JOHN M. CLARKE

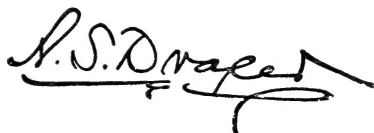
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COMMISSIONER'S ROOM

Approved for publication Jan. 16, 1905

A handwritten signature in dark ink, reading "A. S. Draper". The signature is written in a cursive style with a prominent horizontal line under the first name and a large, sweeping flourish at the end.

Commissioner of Education

LIBRARY SMITHSONIAN INSTITUTION

New York State Museum

JOHN M. CLARKE Director
CHARLES H. PECK State Botanist

Bulletin 94

BOTANY 8

REPORT OF THE STATE BOTANIST 1904

Specimens of plants for the state herbarium have been collected in the counties of Albany, Columbia, Essex, Fulton, Genesee, Hamilton, Lewis, Livingston, Madison, Monroe, Otsego, Rensselaer, Saratoga, Schenectady, Suffolk, Tompkins, Warren and Wyoming.

Specimens have been contributed that were collected in the counties of Albany, Cattaraugus, Chautauqua, Dutchess, Essex, Greene, Hamilton, Herkimer, Monroe, Oneida, Onondaga, Ontario, Orleans, Richmond, Saratoga, Suffolk, Tioga, Tompkins and Washington.

The number of species of which specimens have been added to the herbarium is 321. Of these, 72 were not previously represented in it and the remaining 249 are now better or more completely represented. Of the 72 species, 9 are considered new or previously undescribed species. These are all fungi. Descriptions of them will be given in the following pages. The names of the species of which specimens have been added to the herbarium are given under the title "Plants added to the herbarium."

The names of those who have contributed specimens and the names of the species represented by their respective contributions are given under the title "Contributors and their contributions." Many of the contributed specimens belong to extralimital species. Some of the specimens of mosses and hepatics contributed by Prof. John Macoun, botanist of the Geological and Natural History Survey of Canada, represent species found in the extreme western and northwestern part of British America. In some cases, specimens sent for identification have been in good condition and desirable for the herbarium. These have been preserved and credited to the sender as a contribution. The number of contributors is 54.

In a third chapter, under the heading "Species not before reported," are the names of species new to our flora. This contains the names of a few species that had previously been recorded and were represented in the herbarium as varieties of other species, but they have now been raised to specific rank and are herein recorded as good species. Remarks concerning habitats, descriptions of new species, and the time of collecting the specimens, are given under their respective species. The number of species recorded is 80. Of these 35 belong to the genus *Crataegus*.

In a fourth chapter, bearing the title "Remarks and observations," there is a record of new stations of rare plants, descriptions of new varieties, remarks concerning peculiar or distinguishing features of certain plants and new names given to some species as required by the law of priority.

The number of identifications of species made for correspondents and others, who have sent or brought specimens of plants to the office of the botanist for this purpose, is 675. The number of persons for whom identifications have been made is 100.

The number of species of mushrooms that have been tried and approved as edible is 8. Descriptions of these and of a new variety of a species previously found to be edible constitute a chapter entitled "Edible fungi." Colored figures of natural size have been prepared of all these and placed on 7 plates, octavo size. The number of New York species and varieties of edible mushrooms previously reported is 153.

Colored figures of 5 new species are given on 3 similar plates. The study of our *Crataegus* flora has been continued, and many specimens of trees and shrubs of this genus have been collected. The specific identity of many of these has not yet been determined. Rochester and its vicinity have furnished plants from which 31 species of *Crataegus* have been described by Prof. C. S. Sargent. Many of these were found within the limits of the city parks. By the wise and careful forethought of Mr C. C. Laney, superintendent of parks, labels have been placed on the particular thorn trees and shrubs which furnished the material from which the descriptions of the several new species were derived. Type trees, in a genus in which many species resemble each other as closely as they do in the genus *Crataegus*, possess a peculiar value and importance and it is very fortunate in this instance, where so many type trees and shrubs grow in such close proximity to each other and where they can be protected, that they have been properly labeled with their botanical names. It reduces very much any danger of mistakes in their identification.

In order to collect typical flowering specimens of as many of these species as possible, this prolific locality was visited in the flowering time of these plants and specimens were collected. It was again visited in autumn and a corresponding set of fruiting specimens was collected, so that now most of the Rochester species are well and, we believe, correctly represented in the state herbarium. These specimens will serve as a standard with which to compare specimens of closely related species collected in other localities. They exhibit the specific characters in some respects with greater precision than the words of descriptions can do.

It has been observed that there is some variability in the fruit of some species even on the same shrub. The fruit on a certain shrub of *Crataegus delucida* in 1903 was small, irregular and "wormy." The present year it was noticeably larger, fair and sound. The fruit of the Graves thorn, *C. gravesii*, which is produced by a clump of bushes near North Albany, is variegated when mature and ripening, dull red and green colors being intermingled. Three years in succession this clump has borne fruit of this character. Its failure to ripen its fruit evenly is due to the attacks of a parasitic fungus related to, if not the same species as, the one that causes apple scab on apples. A clump of bushes of the same species growing in Tivoli hollow bears fruit that is fair and uniformly colored when ripe. It appears to be exempt from the attacks of the fungus. The fruit on some plants has been more persistent this year than it was last year. This is perhaps largely due to the absence of many of the insects that usually prey on thorn apples. It is probably also due in part to favorable weather conditions. A plentiful supply of moisture has enabled the plants to maintain their growth and vigor late in the season. The more vigorous the plant the stronger its tendency to hold its foliage and fruit. In some species the fruit regularly persists long after the leaves have fallen.

The tendency of numerous species to crowd together in certain localities is a noticeable character in these plants. It is not uncommon to find two and three species growing close to each other and intermingling their branches so intimately as to appear at first sight to be a single intricately branched individual. If specimens for the herbarium are taken from such a clump great confusion and perplexity is likely to result unless the greatest care is taken not to mingle samples from different species. But association on a larger scale excites our wonder. That there should be 41 species of *Crataegus* growing spontaneously in the parks of the city of Rochester and in its immediate vicinity is a remarkable fact. On

Crown Point promontory, within an area of scarcely 50 acres, 13 species have been recognized, and in a certain locality within the limits of Albany on an area of scarcely 2 acres there are 15 species of *Crataegus*. Certain peculiarities of these groupings of species are not devoid of interest. In the Rochester locality the section *Pruinosae* is represented by 8 species, though *C. pruinosa*, the pruinose thorn itself is absent. The section *Tenuifoliae* is represented there by 11 species, but in the Crown Point locality this section has no representative and the section *Pruinosae* has but one and that is the pruinose thorn, the very one which is absent from Rochester. Only 5 species are common to the two localities, and these are species known to have a wide distribution. The two most abundant species at Crown Point are the cockspur thorn, *C. crus-galli*, and the round leaved thorn, *C. coccinea rotundifolia*. These two species apparently constitute fully one half of all the thorn growth of the locality. Several of the other species are represented by only a few individuals each. The dotted fruited thorn, *C. punctata*, is one of these scantily represented species. It is a species of wide range and probably occurs in more localities in our State than any other species. If any place has but one species of thorn it is most likely to be the dotted fruited thorn. If there are but two or three species this is likely to be the most abundant one. About Albany it and the cockspur thorn are common and nearly equal in abundance. Its slight representation in the Crown Point locality is therefore somewhat strange.

The botanical department contributed specimens of 16 species of edible mushrooms to the St Louis Exposition and, through the Forestry Commission, photographs and other representations of 80 species of trees.

Mr Stewart H. Burnham was employed as temporary assistant from July 1 to Sep. 21. He has made a rearrangement of the books and pamphlets of the library, and of the duplicate and extralimital specimens of the herbarium, has put typewritten labels on the shelves of the library and of the herbarium in order to facilitate reference to books and to specimens, and has prepared typewritten labels for a series of several hundred species of fungi that are kept in pasteboard boxes, placed these labels on the boxes and arranged them alphabetically. He has also assisted in the correspondence of the office and in disinfecting specimens. By his employment it was possible to keep the office open in the absence of the botanist while engaged in field work.

PLANTS ADDED TO THE HERBARIUM

New to the herbarium

- | | |
|--|---|
| Amanita crenulata <i>Pk.</i> | Crataegus leiophylla <i>Sarg.</i> |
| A. lignophila <i>Atk.</i> | C. lennoniana <i>Sarg.</i> |
| A. radicata <i>Pk.</i> | C. macauleyae <i>Sarg.</i> |
| Arenaria leptoclados <i>Guss.</i> | C. maineana <i>Sarg.</i> |
| Arisaema stewardsoni <i>Britton</i> | C. opulens <i>Sarg.</i> |
| Boletus atkinsoni <i>Pk.</i> | C. ornata <i>Sarg.</i> |
| B. laricinus <i>Berk.</i> | C. parviflora <i>Sarg.</i> |
| B. nobilis <i>Pk.</i> | C. pedicellata <i>Sarg.</i> |
| B. rugosiceps <i>Pk.</i> | C. persimilis <i>Sarg.</i> |
| Botrychium tenebrosus <i>A. A. Eaton</i> | C. rubicunda <i>Sarg.</i> |
| Bryum pendulum <i>Schp.</i> | C. spissiflora <i>Sarg.</i> |
| Clavaria botrytoides <i>Pk.</i> | C. streeterae <i>Sarg.</i> |
| C. xanthosperma <i>Pk.</i> | C. tenuiloba <i>Sarg.</i> |
| Collybia amabilipes <i>Pk.</i> | C. verecunda <i>Sarg.</i> |
| Convolvulus repens <i>L.</i> | Craterellus taxophilus <i>Thom</i> |
| Cortinarius heliotropicus <i>Pk.</i> | Dipsacus laciniatus <i>L.</i> |
| Crataegus acclivis <i>Sarg.</i> | Eocronartium typhuloides <i>Atk.</i> |
| C. baxteri <i>Sarg.</i> | Falcata pitcheri (<i>T. & G.</i>) <i>Kuntze</i> |
| C. beata <i>Sarg.</i> | Fusarium aquaeductuum <i>R. & R.</i> |
| C. beckwithae <i>Sarg.</i> | Galera capillaripes <i>Pk.</i> |
| C. benigna <i>Sarg.</i> | Gyrostachys ochroleuca <i>Rydb.</i> |
| C. colorata <i>Sarg.</i> | Hypholoma rugocephalum <i>Atk.</i> |
| C. compta <i>Sarg.</i> | Hypomyces banningiae <i>Pk.</i> |
| C. cupulifera <i>Sarg.</i> | H. inaequalis <i>Pk.</i> |
| C. deweyana <i>Sarg.</i> | Lachnocladium semivestitum <i>B. & C.</i> |
| C. diffusa <i>Sarg.</i> | Lactarius brevis <i>Pk.</i> |
| C. dunbari <i>Sarg.</i> | L. colorascens <i>Pk.</i> |
| C. durobrivensis <i>Sarg.</i> | Pholiota appendiculata <i>Pk.</i> |
| C. ellwangeriana <i>Sarg.</i> | Salix serissima (<i>Bail.</i>) <i>Fern.</i> |
| C. ferentaria <i>Sarg.</i> | Sisyrinchium arenicola <i>Bickn.</i> |
| C. formosa <i>Sarg.</i> | Stachys sieboldi <i>Miq.</i> |
| C. fulleriana <i>Sarg.</i> | Teucrium boreale <i>Bickn.</i> |
| C. gemmosa <i>Sarg.</i> | Viola amoena <i>Le Conte</i> |
| C. glaucophylla <i>Sarg.</i> | V. latiuscula <i>Greene</i> |
| C. hudsonica <i>Sarg.</i> | V. septentrionalis <i>Greene</i> |
| C. laneyi <i>Sarg.</i> | Zygodesmus granulatus <i>Pk.</i> |

Not new to the herbarium

- | | |
|--|--|
| Actaea rubra (<i>Ait.</i>) <i>Willd.</i> | Amanitopsis vaginata (<i>Bull.</i>) <i>Roze</i> |
| Agaricus abruptibulbus <i>Pk.</i> | Antennaria ambigens (<i>Greene</i>) <i>Fern.</i> |
| A. campester <i>L.</i> | A. canadensis <i>Greene</i> |
| A. subrufescens <i>Pk.</i> | A. fallax <i>Greene</i> |
| Allium tricoccum <i>Ait.</i> | A. neglecta <i>Greene</i> |
| Alsine borealis (<i>Bigel.</i>) <i>Britton</i> | A. petaloidea <i>Fern.</i> |
| Amanita caesarea <i>Scop.</i> | A. plantaginea <i>R. Br.</i> |
| A. muscaria <i>L.</i> | Anthemis cotula <i>L.</i> |
| Amanitopsis volvata (<i>Pk.</i>) <i>Sacc.</i> | Aquilegia vulgaris <i>L.</i> |

- Arenaria serpyllifolia* L.
Arisaema triphyllum (L.) Torr.
Aristolochia clematidis L.
Artemisia stelleriana Bess.
Asplenium angustifolium Mx.
Asterodon ferruginosum Pat.
Bactridium ellisii Berk.
Bartonia virginica (L.) B. S. P.
Bidens frondosa L.
Blephariglottis ciliaris (L.) Rydb.
 B. *grandiflora* (Bigel.)
Blephilia hirsuta (Pursh) Torr.
Blitum capitatum L.
Botrychium dissectum Spreng.
 B. *obliquum* Muhl.
 B. *obliquum elongatum*
 G. & H.
 B. *obliquum habereri* Gilb.
 B. *obliquum oneidense*
 Clute
 B. *simplex* Hitch.
Boletinus grisellus Pk.
 B. *porosus* (Berk.) Pk.
Boletus clintonianus Pk.
 B. *cyanescens* Bull.
 B. *eximius* Pk.
 B. *felleus* Bull.
 B. *frostii* Russell
 B. *illudens* Pk.
 B. *nebulosus* Pk.
 B. *rubropunctus* Pk.
Bovista plumbea Pers.
Brassenia purpurea (Mx.) Casp.
Brassica arvensis (L.) B. S. P.
 B. *rapa* L.
Callitriche heterophylla Pursh
Cantharellus cinnabarinus Schw.
 C. *floccosus* Schw.
Carex castanea Wahl.
 C. *comosa* Boott
 C. *crawei* Dew.
 C. *formosa* Dew.
 C. *hitchcockiana* Dew.
 C. *lur. exundans* Bail.
 C. *setifolia* (Dew.) Britton
Cercospora circumscissa Sacc.
Chamaedaphne calyculata (L.)
Clavaria botrytes Pers.
 C. *cristata* Pers.
 C. *platyclada* Pk.
Claytonia caroliniana Mx.
Clitocybe albissima Pk.
 C. *candicans* Pers.
 C. *centralis* Pk.
 C. *clavipes* Pers.
 C. *cyathiformis* Fr.
 C. *eccentrica* Pk.
 C. *ochropurpurea* Berk.
Collybia nigrodisca Pk.
Convolvulus spithameus L.
Coprinus micaceus L.
Cornus canadensis L.
Cortinarius cinnamomeus Fr.
Crataegus holmesiana Ashe
 C. *macracantha* Lodd.
 C. *pringlei* Sarg.
 C. *tatnalliana* Sarg.
 C. *succulenta* Lk.
 C. *tomentosa* L.
Cudonia circinans (Pers.) Fr.
 C. *lutea* (Pk.) Sacc.
Cudoniella marcida (Mull.) Sacc.
Daedalea unicolor (Bull.) Fr.
Daphne mezereum L.
Dianthera americana L.
Diplodia conigena Desm.
Discina orbicularis Pk.
Eatonia pennsylvanica (DC.)
Eleocharis acicularis (L.) R. & S.
 E. *acuminata* (Mx.) Nees
 E. *pal. vigens* Bail.
 E. *pal. glaucescens* (Willd.)
Eragrostis eragrostis (L.) Karst.
Eriophorum alpinum L.
Erythronium americanum Ker
Eurotium herbariorum (Wigg.) Lk.
Fagopyrum tataricum (L.) Gaertn.
Filix bulbifera (L.) Underw.
Fistulina hepatica Fr.
Fragaria americana (Porter) Britton
 F. *vesca* L.
Fraxinus nigra Marsh.
Geoglossum ophioglossoides (L.)
 G. *velutipes* Pk.
Geum canadense Jacq.
Gratiola aurea Muhl.
Gyalecta pineti (Schrud.) Tuckerm.
Gyrostachys cernua (L.) Kunze
 G. *stricta* Rydb.
 G. *plantaginea* (Raf.)

- Helvella infula* *Schaeff.*
Hieracium praealtum *Vill.*
Hudsonia tomentosa *Nutt.*
Hydnum adustum *Schw.*
H. fennicum *Karst.*
H. imbricatum *L.*
H. vellereum *Pk.*
H. zonatum *Batsch*
Hydrangea arborescens *L.*
Hygrophorus flavodiscus *Frost*
H. fuliginosus *Frost*
H. immutabilis *Pk.*
H. lau. decipiens *Pk.*
H. pratensis (*Pers.*) *Fr.*
Hypholoma incertum *Pk.*
H. sublateralitium *Schaeff.*
Ilex verticillata (*L.*) *Gray*
Iris versicolor *L.*
Juncus acuminatus *Mx.*
J. balticus *Willd.*
J. brachycephalus (*Engelm.*)
J. marginatus *Rostk.*
Juniperus nanus *Willd.*
Lactarius alpinus *Pk.*
L. volemus *Fr.*
Larix laricina (*DuRoi*) *Koch*
Lathyrus myrtifolius *Muhl.*
Lentinus lepideus *Fr.*
L. suavissimus *Fr.*
Lenzites sepiaria *Fr.*
Lepiota cepaestipes *Sow.*
Leptoglossum luteum (*Pk.*) *Sacc.*
Leptorchis loeselii (*L.*) *MacB.*
Lilium superbum *L.*
Limnorchis dil. linearifolia *Rydb.*
Lithospermum officinale *L.*
Lobelia cardinalis *L.*
Lychnis alba *Mill.*
L. chalconica *L.*
Lycium vulgare (*Ait.*) *Dunal*
Malus coronaria (*L.*) *Mill.*
Marasmius res. candidissimus *Pk.*
M. oreades *Fr.*
Mentha canadensis *L.*
Mikania scandens *Willd.*
Morchella bispora *Sor.*
M. deliciosa *Fr.*
Moriophyllum verticillatum *L.*
Naias flexilis (*Willd.*) *R. & S.*
Naumbergia thyrsoflora (*L.*)
Omphalia austinii *Pk.*
Onagra oakesiana (*Gr.*) *Britton*
Osmunda claytoniana *L.*
Oxalis corniculata *L.*
O. cymosa *Small*
Panax quinquefolium *L.*
Panicum lanuginosum *Ell.*
Peramium pubescens (*Willd.*)
Phacelia dubia (*L.*) *Small*
Phlox subulata *L.*
Pholiota adiposa *Fr.*
P. togularis (*Bull.*) *Fr.*
Phytophthora infestans (*Mont.*)
Picea canadensis (*Mill.*)
P. mariana (*Mill.*) *B. S. P.*
Pleurotus ostreatus (*Jacq.*) *Fr.*
P. ulmarius *Fr.*
Pluteus cervinus (*Schaeff.*) *Fr.*
Polygonum lapathifolium *L.*
Polystictus pergamenus *Fr.*
P. pseudopergamenus
Thum.
Potamogeton natans *L.*
Potentilla argentea *L.*
Protomyces erythronii *Pk.*
Prunus americana *Marsh.*
P. cuneata *Raf.*
P. nigra *Ait.*
P. pennsylvanica *L.*
Pterospora andromedea *Nutt.*
Quercus acuminata (*Mx.*)
Q. nana (*Marsh.*) *Sarg.*
Q. prinus *L.*
Ranunculus hispidus *Mx.*
Rhamnus cathartica *L.*
Rosa sayi *Schw.*
R. setigera *Mx.*
Rubus canadensis *L.*
R. nigrobaccus *Bail.*
R. odoratus *L.*
Rudbeckia hirta *L.*
R. laciniata *L.*
Rumex acetosa *L.*
Russula compacta *Frost*
R. earlei *Pk.*
R. flavida *Frost*
R. lepida *Fr.*
R. magnifica *Pk.*
R. mariae *Pk.*
R. virescens (*Schaeff.*)

<i>Rhynchospora alba</i> (L.) Vahl	<i>Scleroderma vulgare</i> Hornem.
<i>Salix amygdaloides</i> Anders.	<i>Teucrium boreale</i> Britton
<i>S. pet. gracilis</i> Anders.	<i>Thymus serpyllum</i> L.
<i>Sarracenia purpurea</i> L.	<i>Tricholoma personatum</i> Fr.
<i>Scirpus occidentalis</i> (Wats.)	<i>Urnula craterium</i> (Schw.) Fr.
<i>S. pedicellatus</i> Fern.	<i>Vagnera stellata</i> (L.) Morong
<i>Scrophularia marylandica</i> L.	<i>Veronica byzantina</i> (S. & S.)
<i>Selaginella apus</i> Spring	<i>Viburnum dentatum</i> L.
<i>Silene antirrhina</i> L.	<i>V. lentago</i> L.
<i>S. vulgaris</i> (Moench)	<i>V. opulus</i> L.
<i>Sisymbrium altissimum</i> L.	<i>Viola blanda</i> Willd.
<i>Sisyrinchium angustifolium</i> Mill.	<i>V. palm. dilatata</i> Ell.
<i>Smilax hispida</i> Muhl.	<i>V. pap. domestica</i> (Bickn.)
<i>Solidago uniligulata</i> (D C.) Porter	<i>V. pubescens</i> Ait.
<i>Specularia perfoliata</i> (L.) D C.	<i>V. rotundifolia</i> Mx.
<i>Stachys aspera</i> Mx.	<i>V. scabriuscula</i> (T. & G.) Schw.
<i>S. palustris</i> L.	<i>V. sororia</i> Willd.
<i>Stereum complicatum</i> Fr.	<i>Xyris montana</i> Ries
<i>S. spadiceum</i> Fr.	<i>Zygadenus elegans</i> Pursh

CONTRIBUTORS AND THEIR CONTRIBUTIONS

Mrs E. B. Blackford, Boston Mass

Amanita radicata Pk.

Mrs F. B. M. Cholwell, Old Forge

Amanita phalloides Fr.

Miss J. F. Conant, Melrose Mass

Hygrophorus pallidus Pk.

Mrs G. M. Dallas, Philadelphia Pa.

Eryngium virginianum Lam. | *Geopyxis nebulosa* (Cke.) Sacc.

Mrs C. F. Davis, Falmouth Me.

Clitocybe clavipes (Pers.) Fr.

Mrs M. S. De Coster, Little Falls

Daphne mezereum L.

Miss H. A. Edwards, Port Henry

Pterospora andromedea Nutt.

Miss R. C. Fish, Norwich Ct.

Clitopilus tarduus Pk.

Mrs L. L. Goodrich, Syracuse

Phacelia dubia (L.) Small

Miss C. C. Haynes, Highlands N. J.

<i>Bazzania triloba</i> (L.) S. F. Gray	<i>Lepidozia reptans</i> (L.) Dumort.
<i>Blepharostoma trichophyllum</i> (L.) Dumort.	<i>Lophozia barbata</i> (Schreb.) L. incisa (Schrad.)
<i>Cephalozia curvifolia</i> (Dicks.) Dumort.	<i>Plagiochila asplenioides</i> (L.) Dumort.
C. lunulaefolia Dumort.	<i>Porella platyphylla</i> (L.) Lindb.
<i>Cololejeunea biddlecomiae</i> (Aust.) Evans	<i>Ptilidium ciliare</i> (L.) Nees
<i>Conocephalum conicum</i> Dumort.	<i>Radula complanata</i> (L.) Dumort.
<i>Frullania asagrayana</i> Mort.	<i>Scapania nemorosa</i> (L.) Dumort.
F. eboracensis Gottsche	S. undulata (L.) Dumort.
<i>Jamesoniella autumnalis</i> (D C.) Steph.	<i>Sphenobolus exsectus</i> (Schm.)
	<i>Trichocolea tomentella</i> (Ehrh.)

Mrs M. A. Knickerbocker, San Francisco Cal.

<i>Berberis pinnata</i> Lag.	<i>Pseudotsuga mucronata</i> (Raf.)
<i>Chrysoma ericoides</i> (Less.) Greene	<i>Rhus integrifolia</i> B. & H.
<i>Croton californicus</i> Muell.	<i>Ribes sanguineum</i> Pursh
<i>Garrya elliptica</i> Doug.	<i>Sequoia sempervirens</i> Endl.
<i>Heteromeles arbutifolia</i> Roem.	<i>Vaccinium ovatum</i> Pursh

Miss J. A. Moses, Jamestown*Viola rotundifolia* Mx.**Miss C. S. Parsons, Albany***Rudbeckia hirta* L.**Mrs J. M. Peters, Pleasant Valley***Hypholoma sublateralitium* (Schaeff.) Fr.**Miss T. L. Smith, Worcester Mass.**

<i>Cantharellus brevipes</i> Pk.	<i>Hypocrea pallida</i> E. & E.
<i>Clitocybe decora</i> Fr.	<i>Lepiota amianthina</i> Scop.
<i>Hexagona micropora</i> Murrill	<i>Pleurotus porrigens</i> (Pers.) Fr.
<i>Hydnum adustum</i> Schw.	<i>Polyporus pubescens</i> Schum.
H. vellereum Pk.	P. varius Fr.

Miss M. S. Whetstone, Minneapolis Minn.*Pluteus umbrosus* Pers.**J. C. Arthur, Lafayette Ind.**

<i>Puccinia brickelliae</i> Pk.	<i>Puccinia simillima</i> Arth.
P. malvacearum Mont.	P. viguierae Pk.

G. F. Atkinson, Ithaca

<i>Amanita caesarea</i> Scop.	<i>Hypholoma rugocephalum</i> Atk.
A. lignophila Atk.	<i>Lachnocladium semivestitum</i> B. & C.
A. mappa Fr.	<i>Lactarius colorascens</i> Pk.
<i>Clitocybe asperulospora</i> Atk.	<i>Pholiota adiposa</i> Fr.
<i>Collybia amabilipes</i> Pk.	<i>Russula sordida</i> Pk.
<i>Coprinus ebulbosus</i> Pk.	<i>Tricholoma sulphureum</i> (Bull.)
<i>Ecronartium typhuloides</i> Atk.	<i>Uredinopsis atkinsonii</i> Magn.
<i>Hydnum imbricatum</i> L.	U. osmundae Magn.

A. M. Baker, Irondequoit*Geaster triplex Jungh.***H. J. Banker**, California Pa.*Physalacria inflata (Schw.) Pk.* | *Scorias spongiosa (Schw.) Fr.***E. Bartholomew**, Rockport Kan.*Uromyces gaurinus (Pk.) Long* | *Uromyces oenotherae Burrill***F. S. Boughton**, Pittsford*Hyphomyces banningiae Pk.***F. J. Braendle**, Washington D. C.*Cortinarius braendlei Pk.* | *Thelephora palmata Scop.*
Phallus imperialis Schulz. | *Torrubia militaris (L.) Lk.***E. Brainerd**, Middlebury Vt.*Viola cucullata Ait.* | *Viola palmata dilatata Ell.*
V. latiuscula Greene | *V. septentrionalis Greene*
V. obliqua Hill | *V. sororia Willd.***S. H. Burnham**, Vaughns*Aronia atropurpurea Britton* | *Rhus glab. borealis Britton*
Aster lat. thyrsoides (Gr.) Sheldon | *Rosa sayi Schw.*
Bidens frondosa L. | *Salix pet. gracilis Anders.*
Favolus europaeus Fr. | *Sisyrinchium arenicola Bickn.*
Gyrostachya ochroleuca Rydb. | *Stachys sieboldi Miq.*
Hebeloma illicitum Pk. | *Steironema lanceolatum (Walt.)*
Hieracium marianum Willd. | *Thymus serpyllum L.*
Hypomyces lactifluorum Schw. | *Trametes rubescens Fr.*
Monarda punctata L. | *Tremella fuciformis Berk.*
Nabalus altissimus (L.) Hook. | *Tricholoma personatum Fr.*
Polyporus elegans Fr. | *Urnula craterium (Schw.) Fr.*
P. pallidus S. & K. | *Vicia angustifolia Roth***G. D. Cornell**, Cooper's Plains*Panax quinquefolium L.***S. Davis**, Boston Mass.*Agaricus comtulus Fr.* | *Pholiota togularis (Bull.) Fr.*
Clitocybe brumalis Fr. | *Tricholoma pallidum Pk.*
Hypholoma incertum Pk. | *T. terr. fragrans Pk.***F. Dobbin**, Shushan*Convolvulus repens L.* | *Stemonitis fusca Roth*
*C. spithameus L.***C. E. Fairman**, Lyndonville*Armillaria nardosmia Ellis* | *Hydnum spongiosipes Pk.*
Clitocybe eccentrica Pk. | *Russula crustosa Pk.*

F. E. Fenno, Nichols

<i>Crataegus tomentosa</i> L.	<i>Polygonum lapathifolium</i> L.
<i>Juncus acuminatus</i> Mx.	<i>Roripa sylvestris</i> (L.) Bess.
J. <i>balticus</i> Willd.	<i>Rosa setigera</i> Mx.
J. <i>brachycephalus</i> (Engelm.)	<i>Rynchospora alba</i> (L.) Vahl.
J. <i>marginatus</i> Rostk.	R. <i>capillacea</i> Torr.
<i>Lobelia kalmii</i> L.	<i>Scirpus pedicellatus</i> Fern.
<i>Panicum xanthophysum</i> Gray	<i>Silene vulgaris</i> (Moench) Garcke
<i>Parnassia caroliniana</i> Mx.	<i>Smilax hispida</i> Muhl.
<i>Polygala viridescens</i> L.	<i>Solidago unilugulata</i> (D C.) Porter

G. B. Fessenden, Boston Mass.

Lactarius regalis Pk.

B. D. Gilbert, Clayville

<i>Bryum pendulum</i> Schp.	<i>Camptothecium nitens</i> Schp.
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N. M. Glatfelter, St Louis Mo.

<i>Gyromitra brunnea</i> Underw.	<i>Panus meruliiceps</i> Pk.
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C. C. Hanmer, East Hartford Ct.

Guepinia spathularia Schw.

J. V. Haberer, Utica

<i>Achroanthos monophylla</i> (L.) Greene	<i>Geranium bicknellii</i> Britton
A. <i>unifolia</i> (Mx.) Raf.	<i>Gyrostachys cernua</i> (L.)
<i>Adopogon carolinianum</i> Britton	G. <i>ochroleuca</i> Rydb.
<i>Alsine borealis</i> (Bigel.) Britton	G. <i>plantaginea</i> (Raf.)
<i>Arenaria leptoclados</i> Guss.	G. <i>praecox</i> (Walt.) Kuntze
A. <i>serpyllifolia</i> L.	G. <i>stricta</i> Rydb.
<i>Antennaria canadensis</i> Greene	<i>Lactuca virosa</i> L.
A. <i>fallax</i> Greene	<i>Leptorchis loeselii</i> (L.) MacM.
A. <i>neglecta</i> Greene	<i>Limnorchis dil. linearifolia</i> Rydb.
A. <i>parlinii</i> Fern.	<i>Lycopodium tristachyum</i> Pursh
A. <i>petaloides</i> Fern.	<i>Lysimachia terrestris</i> (L.) B. S. P.
A. <i>plantaginea</i> B. Br.	<i>Myriophyllum verticillatum</i> L.
<i>Artemisia stelleriana</i> Bess.	<i>Naias flexilis</i> (Willd.) R. & S.
<i>Asclepias tuberosa</i> L.	<i>Oxalis corniculata</i> L.
<i>Bartonia virginica</i> (L.) B. S. P.	<i>Peramium pubescens</i> (Willd.)
<i>Blephariglottis grandiflora</i> (Bigel.)	<i>Polygonella articulata</i> (L.)
<i>Botrychium dissectum</i> Spreng.	<i>Rhamnus cathartica</i> L.
B. <i>obliquum</i> Muhl.	<i>Rumex acetosa</i> L.
B. <i>obliquum elongatum</i>	<i>Scrophularia marylandica</i> L.
<i>G. & H.</i>	<i>Selaginella apus</i> Spring
B. <i>obliquum habereri</i> Gilb.	<i>Silene antirrhina</i> L.
B. <i>obliquum oneidense</i>	<i>Sorbus aucuparia</i> L.
<i>Clute</i>	<i>Specularia perfoliata</i> (L.) D C.
B. <i>simplex</i> Hitch.	<i>Stachys palustris</i> L.
B. <i>tenebrosum</i> Eaton	S. <i>aspera</i> Mx.
<i>Callitriche heterophylla</i> Pursh	<i>Teucrium boreale</i> Bickn.
<i>Ceanothus americanus</i> L.	<i>Valeriana uliginosa</i> Rydb.
<i>Fragaria vesca</i> L.	<i>Verbascum lychnidis</i> L.
<i>Galium mollugo</i> L.	<i>Xyris montana</i> Ries

W. Herriot, Galt Ont.

Carex lupuliformis Sart.
Leontodon hispidus L.

Linaria minor Desf.

H. H. Hindshaw, Albany

Anthoceros laevis L.

Bulgaria inquinans Fr.

E. A. Lehman, Winston-Salem N. C.

Merulius lacrymans (Jacq.) Fr.

R. B. Mackintosh, Peabody Mass.

Boletus parasiticus Bull.
 B. *rubropunctus* Pk.
Hydnum fennicum Karst.

Hydnum vellereum Pk.
Lepiota rhacodes (Vitt.) Fr.

J. Macoun, Ottawa Can.

Amblystegium fluviatile B. & S.
 A. *subcompactum* C. M.
 & K.

Andraea petrophila Ehrh.

Aneura latifrons Lindb.

A. *pinguis* Dumort.

Anthoceros laevis L.

Aulacomnion palustre (L.) *Schwaegr.*

A. *palustre imbricatum*
 B. & S.

A. *palustre subimbrica-*
tum Kindb.

A. *turgidum* (Wahl.)

Barbula circinnatula C. M. & K.

B. *convoluta* Hedw.

Bazzania trilobata (L.) S. F. Gray

Biatora uliginosa (Schrad.) Fr.

Blepharostoma setiforme (Ehrh.)

B. *trichophyllum* (L.)

Brachythecium glareosum Bruch

B. *salebrosus* B. & S.

Bryum arcticum B. & S.

B. *auromontanum* Kindb.

B. *caespitium* L.

B. *capillare* L.

B. *cirrhatum* H. & H.

B. *cyclophyllum* B. & S.

B. *dawsoniense* Will.

B. *duvalii* Voit

B. *ery. gaspeanum* Kindb.

B. *haematophyllum* Kindb.

B. *intermedium* Brid.

B. *klondikense* Kindb.

B. *micans* Limpr.

B. *mucronigerum* Philib.

Bryum pseudotriquetrum *Schwaegr.*

Calliergon cordifolium Hedw.

C. *giganteum* Schp.

C. *stramineum* Dicks.

C. *subgiganteum* Kindb.

Camptothecium nitens Schreb.

C. *nitens microthecium*
 Kindb.

Campylium stellatum Schreb.

Catascopium nigrum Brid.

Cephalozia bicuspidata (L.)

C. *leucantha* Spruce

C. *media* Lindb.

C. *pleniceps* (Aust.)

Ceratodon columbiae Kindb.

Chiloscyphus polyanthos Cd.

Climacium dendroides W. & M.

Corticium canadense Burt

C. *calc. glebulosum* Fr.

C. *croceum* (Kunze)

C. *crustaceum* Karst.

C. *effuscatum* C. & E.

C. *galactinum* (Fr.) Burt

C. *greschikii* Bres.

C. *pinicolum* Tul.

Cynodontium strumiferum Ehrh.

C. *torquescens* (Bruch)

C. *wahlenbergii* (Brid.)

Dicranella crispa Schp.

D. *secunda* (Sw.) Lindb.

Dicranum bergeri Bland.

D. *bergeri brevifolium* Lindb.

D. *bergeri rupicola* Kindb.

D. *elongatum* *Schwaegr.*

- Dicranum elongatum attenuatum*
Kindb.
 D. elongatum subfragilifolium *K.*
 D. fragilifolium *Lindb.*
 D. fuscescens *Turn.*
 D. leioneuron *Kindb.*
 D. muehlenbeckii *B. & S.*
 D. schisti *Lindb.*
 D. spadiceum *Zett*
 D. sphagni *Wahl.*
 D. subpalustre *C. M. & K.*
 D. sulcatum *Kindb.*
Didymodon baden-powellii Kindb.
Diplophyllia albicans (L.) Trev.
 D. taxifolia (*Wahl.*) *Trev.*
Distichum capillaceum B. & S.
Ditrichum flex. densum Kindb.
 D. inclinatum *Ehrh.*
 D. macouni *C. M. & K.*
 D. pallidum *Hampe*
Eurhynchium edentulum Kindb.
 E. strigosum (*Hoffm.*)
 E. strigosum praecox *Hedw.*
 E. strigosum robustum *Kindb.*
Fissidens grandifrons Brid.
 F. osmundoides (*Sw.*)
Fontinalis hypnoides Hartm.
 F. novae-angliae *Sulliv.*
 F. squamosa *L.*
Fossombronina foveolata Lindb.
Frullania eboracensis Gotts.
Grandinia papillata B. & C.
Gymnomitrium coralloides Nees
Hymenochaete corrugata Fr.
Hypnum aduncum L.
 H. amblyphyllum *Will.*
 H. cupressiforme *L.*
 H. exannulatum *Guemb.*
 H. fluitans *L.*
 H. kneiffia *B. & S.*
 H. molluscoides *Kindb.*
 H. plumiferum *Mitt.*
 H. revolvens *Swartz*
 H. rugosum *L.*
 H. schreberi *Willd.*
 H. subimponens *Lesq.*
 H. uncinatum *Hedw.*
Isothecium myosuroides (L.) Brid.
Kantia trichomanes (L.) S. F. Gray
Lecanora elatina Ach.
 L. elatina ochrophaea *Tuckerm.*
 L. pallescens (*L.*) *Schaer.*
Leptobryum pyriforme (L.) Schp.
Lophocolea foveolata Lindb.
 L. minor *Nees*
Lophozia barbata (Schreb.)
 L. floerckii (*W. & M.*)
 L. inflata (*Huds.*)
 L. kunzeana *Hueben.*
 L. lyoni *Tayl.*
 L. minuta *Crantz*
 L. rutheana *Limpr.*
 L. saxicola (*Schrad.*)
 L. ventricosa (*Dicks.*)
Meesia albertini B. & S.
 M. trichodes (*L.*) *Spruce*
 M. uliginosa *Hedw.*
Merulius bellus B. & C.
Mnium blyttii B. & S.
 M. hymenophyllum *Bry. Eur.*
 M. macouni *Kindb.*
 M. macrophyllum *Kindb.*
 M. medium *B. & S.*
 M. pseudolycopodioides *C. M. & K.*
 M. rugicum *Laur.*
 M. subglobosum *B. & S.*
Myurella apiculata B. & S.
 M. julacea *B. & S.*
Odontoschisma macouni Aust.
Orthotrichum anomalum Hedw.
 O. porteri *Aust.*
 O. schimperii *Hamm.*
Pallavicinia lyellii (Hook.)
Paludella squarrosa (L.) Brid.
Peniophora cinerea (Fr.)
Phascum cuspidatum Schreb.
Philonotis aciculare-pungens C. M. & K.
 P. alpicola *Jurat.*
 P. font. microthamniae *Kindb.*
 P. trichophorum (*Spruce*)
Polytrichum hyperboreum R. Br.
 P. juniperinum *Willd.*
 P. juniperinum alpinum *Kindb.*
 P. piliferum *Schreb.*

<i>Polytrichum strictum Banks</i>	<i>Sphagnum girgensohni Russ.</i>
<i>Porella pinnata L.</i>	<i>S. medium Limpr.</i>
<i>Pseudoleskea malacoclada C. M. & K.</i>	<i>Stereum sulcatum Burt</i>
<i>Psilopilum glabratum Lindb.</i>	<i>S. tuberculosum Fr.</i>
<i>Ptilidium ciliare (L.) Nees</i>	<i>Thuidium abietinum B. & S.</i>
<i>Saxicola lophozoides Evans</i>	<i>Thuidium philiberti Limpr.</i>
<i>Scouleria muelleri Kindb.</i>	<i>Webera albicans Schp.</i>
<i>Sebacina calcea (Pers.) Bres.</i>	<i>W. annotinum Schwaegr.</i>
<i>Sphagnum acutifolium R. & W.</i>	<i>W. cruda Schp.</i>
	<i>W. nutans Hedw.</i>

C. McIlvaine, Cambridge Md.

<i>Lentinus vulpinus Fr.</i>	<i>Simblum rubescens Ger.</i>
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F. H. Mickleborough, Brooklyn*Hypomyces inaequalis Pk.***G. E. Morris, Waltham Mass.**

<i>Agaricus micromegethus Pk.</i>	<i>Cortinarius morrisii Pk.</i>
<i>Boletinus grisellus Pk.</i>	<i>Hydnum adustum Schw.</i>

C. H. Prescott, Albany

<i>Boletus clintonianus Pk.</i>	<i>Boletus laricinus Berk.</i>
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C. S. Sargent, Jamaica Plain Mass.

<i>Crataegus acclivis Sarg.</i>	<i>Crataegus leiophylla Sarg.</i>
<i>C. baxteri Sarg.</i>	<i>C. lennoniana Sarg.</i>
<i>C. beata Sarg.</i>	<i>C. holmesiana Ashe</i>
<i>C. benigna Sarg.</i>	<i>C. macauleyae Sarg.</i>
<i>C. colorata Sarg.</i>	<i>C. maineana Sarg.</i>
<i>C. compta Sarg.</i>	<i>C. matura Sarg.</i>
<i>C. conjuncta Sarg.</i>	<i>C. ornata Sarg.</i>
<i>C. cupulifera Sarg.</i>	<i>C. opulens Sarg.</i>
<i>C. deweyana Sarg.</i>	<i>C. parviflora Sarg.</i>
<i>C. diffusa Sarg.</i>	<i>C. pastorum Sarg.</i>
<i>C. dunbari Sarg.</i>	<i>C. pedicellata Sarg.</i>
<i>C. durobrivensis Sarg.</i>	<i>C. persimilis Sarg.</i>
<i>C. ellwangeriana Sarg.</i>	<i>C. pringlei Sarg.</i>
<i>C. ferentaria Sarg.</i>	<i>C. rubicunda Sarg.</i>
<i>C. forbesiae Sarg.</i>	<i>C. spissiflora Sarg.</i>
<i>C. formosa Sarg.</i>	<i>C. streeterae Sarg.</i>
<i>C. fucosa Sarg.</i>	<i>C. succulenta Lk.</i>
<i>C. gemmosa Sarg.</i>	<i>C. tenuiloba Sarg.</i>
<i>C. glaucophylla Sarg.</i>	<i>C. thayeri Sarg.</i>
<i>C. laneyi Sarg.</i>	<i>C. verecunda Sarg.</i>

E. B. Sterling, Trenton N. J.

<i>Cyclomyces greenei Berk.</i>	<i>Lactarius corrugis Pk.</i>
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F. C. Stewart, Geneva

<i>Ccleosporium senecionis (Pers.) Fr.</i>	<i>Fusarium aquaeductuum R. & R.</i>
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D. R. Sumstine, Kittanning Pa.

Grifola sumstinei *Murrill*
Hydnum earleanum *Sumst.*

Pholiota luteofolia *Pk.*
Pleurotus umbonatus *Pk.*

C. Thom, Storrs Ct.

Craterellus taxophilus *Thom*

C. Thal, Milwaukee Wis.

Cortinarius heliotropicus *Pk.*

H. L. Ward, Milwaukee Wis.

Lepiota acutesquamosa *Weinm.*

J. E. Weaver, Rochester

Lentinus lepideus *Fr.*

D. O. Wickham, Hotel Champlain

Clavaria pistillaris *L.* | *Clitocybe multiceps* *Pk.*
Geaster minimus *Schw.*

D. B. Young, Albany

Morchella deliciosa *Fr.*

SPECIES NOT BEFORE REPORTED

***Amanita crenulata* Pk.**

Among fallen leaves in woods. Port Jefferson. August. In our specimens the pileus is more yellow and its margin more distinctly striate than in the type specimens. The mealiness at the top of the stem and the flocculent edge of the lamellae in some of the specimens are also yellowish.

***Amanita lignophila* Atk. ined.**

Decaying wood in woods beyond Forest Home near Ithaca. G F Atkinson. A rare species similar in size and shape to *Amanita mappa* but separable from it by the grayish brown color of the pileus, the solid stem and the thicker membrane of its volva. The spores are globose, granular within and .0003-.0004 of an inch in diameter.

***Amanita radicata* Pk.**

Sandy soil in woods and open places. Port Jefferson, Suffolk co. August. In our specimens the warts of the pileus are smaller than in the typical form.

***Arenaria leptoclados* Guss.**

Wet rocky places near Little Falls. October. J. V. Haberer. This is *A. serpyllifolia* var. *tenuior* Koch of *Synoptical Flora of North America*, fasc. 2 p. 239. Introduced.

***Arisaema stewardsoni* Britton**

Moist rich soil in woods. Lake Bonaparte. June. Similar to *A. triphyllum* in size and general appearance, but easily separated from it by the white spadix and spathe. Forms having a pale but striped spathe sometimes occur and appear to be intermediate between the two species.

***Boletus atkinsoni* n. sp.**

PLATE R, FIG. 1-5

Pileus fleshy, convex or nearly plane, dry, grayish brown or yellowish brown, sometimes minutely rimosely squamulose, flesh white, taste mild; tubes convex, plane or slightly concave in the mass, adnate or slightly depressed around the stem, 3-4 lines long, the mouths minute, at first whitish and stuffed, soon open and yellow or subochraceous; stem stout, equal or slightly thickened at one or both ends, solid, reticulated wholly or at the top only with fine anastomosing brownish lines, pallid; spores fusiform or oblong, .0004-.0005 of an inch long, .00016-.0002 broad.

Pileus 3-4 inches broad; stem 2-4 inches long, 6-12 lines thick.

Woods. Port Jefferson. August. The species belongs to the section *Edules*. The reticulations of the stem are so delicate that they sometimes nearly disappear in drying.

***Boletus laricinus* Berk.**

Under larch trees, *Larix decidua* Mill. Washington park, Albany. October. C. H. Prescott. Edible.

***Boletus nobilis* n. sp.**

Woods. Port Jefferson. August. Edible. For description of the species see article on edible fungi.

***Boletus rugosiceps* n. sp.**

PLATE Q, FIG. 6-10

Pileus firm, fleshy, very convex or hemispheric, becoming broadly convex, dry, rugosely pitted, ochraceous, sometimes tinged with red or orange, occasionally rimose areolate, the thin margin often extending slightly beyond the tubes, flesh white or whitish; tubes at first closed, depressed around the stem, their mouths yellow, becoming darker with age, minute, round; stem firm, subequal, solid, with elevated longitudinal lines or ridges, dotted with numerous brownish or yellowish points, pallid, often narrowed at the base; spores oblong fusiform, .0006-.0008 of an inch long, .0002-.00024 broad.

Pileus 1-3 inches broad; stem 3-4 inches long, 6-8 lines thick.

Woods. Port Jefferson. August. This species grows with *B. rubropunctus*, from which it is easily separated by its dry pileus, smaller tubes and stouter stem. This is large in proportion to the size of the pileus. In both the scabrously dotted stem is suggestive of *Boletus scaber*, but both are separable from that species by the yellow color of the tubes and the different dots of the stem.

***Botrychium tenebrosum* A. A. Eaton**

Deerfield, Oneida co. July. J. V. Haberer. This is one of the smallest of the grape ferns.

***Bryum pendulum* Schp.**

Clayville, Oneida co. B. D. Gilbert.

***Cladonia verticillata* Hoffm.**

Adirondack mountains. Formerly considered a variety of *C. gracilis*, but now deemed worthy of specific distinction.

***Clavaria botrytoides* n. sp.**

Ground in woods. Port Jefferson. August. Edible. For description of the species see the article on edible fungi.

***Clavaria xanthosperma* n. sp.**

Stem very short, firm, solid, divided into numerous branches, white, sometimes becoming red where wounded, ultimate branches short, blunt or obtusely dentate at the apex, the axils rounded, the whole plant white, becoming yellowish or cream-colored with age; spores pale yellow, oblong, .0005-.0006 of an inch long, .00016-.0002 broad, slightly and obliquely pointed at one end.

Woods. Smithtown, Suffolk co. August.

It forms tufts about 2 inches high.

***Collybia amabilipes* Pk.**

Dead trunks. Near Ithaca. June. G. F. Atkinson. Readily distinguished by its tawny, velvety stem.

***Convolvulus repens* L.**

Shushan, Washington co. August. F. Dobbin. This species may be distinguished from *C. spithameus* by its long trailing or twining stems and by the rounded basal lobes of its leaves.

Cortinarius heliotropicus n. sp.

PLATE P, FIG. 1-7

Pileus thin, broadly campanulate, convex or nearly plane, fibrillose, viscid, heliotrope purple, generally spotted or variegated by yellowish white spots, flesh whitish, taste mild or slightly and tardily acrid, odor slight, resembling that of radishes; lamellae narrow, thin, close, rounded behind, adnexed, concolorous with the pileus when young, cinnamon when mature; stem firm, solid, or spongy within, usually slightly thickened at the base, silky fibrillose, viscid, whitish, spotted with purple or colored like the pileus, white within, spores elliptic, .0004-.0005 of an inch long, .0002-.00024 broad.

Pileus 1-2.5 inches broad; stem 1.5-3 inches long, 2-4 lines thick.

Woods. Smithtown. August. This is one of the most beautiful species of *Cortinarius*. It belongs to the section *Myxacium*.

In some specimens the spots on the pileus are large or confluent, in others they are almost or entirely absent, but usually they are small and distinct. The purple color of the lamellae is persistent for some time. In large specimens the margin is sometimes adorned by fibrillose scales of the veil.

Craterellus taxophilus Thom

Decaying vegetable matter under branches of ground hemlock, *Taxus canadensis*. Ithaca. October. C. Thom.

Crataegus persimilis Sarg.

Near Eastern avenue continued, Rochester. This species is allied to *C. crus-galli* from which it may be separated by its smaller flowers, more numerous stamens, more highly colored fruit and more conspicuously glandular serrate calyx lobes.

Crataegus beata Sarg.

Near the roundhouse of the Pennsylvania Railroad, Rochester. Also reported from several other places in and near Rochester. The 20 stamens with dark maroon colored anthers constitute a peculiar character of this species. It and the seven following species belong to the section *Pruinosae*. In all of them the fully grown but unripe fruit is more or less pruinose.

Crataegus lennoniana Sarg.

Seneca park, Rochester. Reported from Adams Basin, Monroe co., and Murray, Orleans co., by M. S. Baxter and from Buffalo by

J. Dunbar. In this and the preceding species the flowers have 20 stamens with red anthers and the fruit is longer than broad.

***Crataegus leiophylla* Sarg.**

Seneca park, Rochester. This thorn takes its specific name from the smoothness of its leaves. Its flowers have 20 stamens but the anthers are pale yellow. Its fruit remains green and pruinose late in the season, ripening in November.

***Crataegus formosa* Sarg.**

Seneca park, Rochester. It has been reported from Buffalo by Mr Dunbar. Its stamens are 20 and the anthers pale yellow. Its fruit also is longer than broad. The tips of the calyx lobes are often deciduous from the ripe fruit.

***Crataegus compta* Sarg.**

Seneca park and Genesee Valley park, Rochester. It has also been found at Rush, Monroe co. and Avon, Livingston co. by Mr Baxter and at Buffalo by Mr Dunbar. Its stamens are 10 and the fruit is generally longer than broad, and is often somewhat pointed at the base. It is peculiar in having a bitter taste. The mature leaves are dark bluish green on the upper surface.

***Crataegus diffusa* Sarg.**

Seneca park, Rochester. Niagara Falls. C. S. Sargent. A shrub with numerous stems and widespreading branches. Its 10 stamens with purple anthers constitute one of its peculiar features. On vigorous young shoots the leaves are sometimes as broad as they are long and they have petioles shorter than those of the leaves on lateral or fertile branches. The fruit is similar in size and shape to that of *C. compta*.

***Crataegus opulens* Sarg.**

Eastern bank of the Genesee river in the northern part of Rochester. The opulent thorn is a rare but well marked species. In the leaves of young and vigorous shoots the basal pair of lobes is enlarged and distinctly separated from the pair above by deep clefts in the margins of the leaf. This gives a three lobed appearance to the leaf. Sometimes the basal lobes are themselves slightly lobed. The fruit is either globose or depressed globose.

***Crataegus maineana* Sarg.**

West side of Seneca park, Rochester. Near Portage, Livingston co. Also found at Adams Basin by Mr Baxter and at Buffalo by

Mr Dunbar. The late ripening globose fruit and the bronze red autumnal foliage are noticeable characters of this species. It has 10 stamens with purple anthers as in *C. diffusa*, but in its almost deltoid or triangular leaves and its nearly entire calyx lobes it is quite distinct from it.

***Crataegus baxteri* Sarg.**

Seneca park, Rochester. It has also been found at Honeoye lake by Mr Baxter and at Chapinville, Ontario co. by Professor Sargent. It and the next following species belong to the section *Intricatae*.

***Crataegus verecunda* Sarg.**

Seneca park, Rochester. This is at present the only known locality of this very rare thorn. It is a smaller shrub than the Baxter thorn and its smaller fruit is longer than broad. The fruit of *C. baxteri* is nearly or quite globose and ripens later.

***Crataegus fulleriana* Sarg.**

In the northern part of Rochester on the east bank of Genesee river. It has been found at Rush and Rochester Junction, Monroe co., by Messrs Baxter and Dunbar. This and the two following species belong to the section *Molles*. The Fuller thorn is a fine and an attractive species. Its flowers have 20 stamens and its large scarlet hairy but shining fruit is longer than broad. It may be either rounded or pointed at the base and is crowned by the long, very narrow and persistent calyx lobes which constitute a peculiar feature of the species.

***Crataegus ellwangeriana* Sarg.**

Rochester and near Portage, Livingston co. The Ellwanger thorn becomes a tree of considerable size. It differs from the Fuller thorn in having only 8-10 stamens in its flowers, in its shorter, stouter spines, shorter pedicels and broader calyx lobes.

***Crataegus spissiflora* Sarg.**

Genesee Valley park, Rochester. Between North Albany and Menands, east of Troy road. The peculiar character of this species and one suggestive of the specific name is its small compact clusters of flowers. Much of the hairiness of its inflorescence and early foliage disappears with age. Its fruit is generally a little longer than broad. It is glabrous when ripe and of a bright scarlet color, beautiful to behold.

***Crataegus durobrivensis* Sarg.**

Banks of the Genesee river in the northern part of Rochester. Near North Albany. It has also been found at Niagara Falls by C. S. Sargent and at Buffalo by J. Dunbar. The Rochester thorn has flowers with 20 stamens, rose-red anthers and 4-5 styles. The calyx lobes are slightly hairy inside, the fruit is globose or nearly so and is said to persist on the branches till midwinter. The species has been placed by Professor Sargent in the section *Dilatatae*, though somewhat aberrant in its characters. In our synopsis of the species we have placed it temporarily in the section *Lobulatae*, from which it diverges in its more numerous stamens.

***Crataegus acclivis* Sarg.**

Steep banks of the Genesee river in the northern part of Rochester. It has also been found at Rush by M. S. Baxter and at Niagara Falls by C. S. Sargent. It is a large fine species easily recognized by its nearly erect branches and its large bright red fruit which is generally a little longer than broad. It sometimes retains, when ripe, some of the hairiness which is so noticeable on the calyx at flowering time. A peculiar feature of the species consists of the broad, lunate, coarsely serrate and persistent stipules which are found on young and vigorous shoots. The lowest pair of lobes on some of the large leaves of these shoots is larger than the others. The flowers have 5-7 stamens with pink anthers. This and the next following species belong to the section *Lobulatae*.

***Crataegus pedicellata* Sarg.**

Rochester. The pedicellate thorn is a large, handsome and attractive species scarcely less beautiful in fruit than in flower. The fruit is either oblong or pyriform and of a bright scarlet color. It is crowned by the generally persistent, erect or incurved, glandular serrate calyx lobes. Its 10 stamens have rose-red anthers.

The 10 following species belong to the section *Tenuifoliae*.

***Crataegus parviflora* Sarg.**

Seneca park, Rochester. It has also been found at Rush by M. S. Baxter. It may be recognized when in bloom by its loose clusters of small flowers supported on long, branched, slender peduncles. The stamens are 5-6, the anthers pink and the styles 2-3.

***Crataegus streeterae* Sarg.**

Genesee Valley park, Rochester. A peculiar feature of this species is the long acuminate point of its leaves. The blades of

some of the leaves of vigorous young shoots are more or less wrinkled. The stamens are 7-10, the anthers rose-red and the styles 3-4.

***Crataegus glaucophylla* Sarg.**

Seneca park and Genesee Valley park, Rochester. Westport, Essex co. In the typical form of this species the leaves at flowering time have a glaucous bloom on the upper surface and are pale and glaucous beneath. This glaucous bloom is sometimes wanting. The stamens vary from 5-10 and the anthers are rosy red. On vigorous shoots the leaves are sometimes slightly cordate. The fruit is longer than broad, bright red or scarlet and sometimes hangs on the branches long after the leaves have fallen.

***Crataegus ornata* Sarg.**

Genesee Valley park, Rochester. Found also at La Salle, Niagara co., by J. Dunbar. On fertile branches the leaves are often oblong ovate but on vigorous young shoots they are broadly ovate. The stamens are 10, the anthers rose-red and the styles 2-3. The fruit hangs in drooping clusters, is of a bright scarlet color and quite ornamental.

***Crataegus rubicunda* Sarg.**

Genesee Valley park, Rochester. It has been found at Buffalo by J. Dunbar. It closely resembles the preceding species, from which it differs in the slight hairiness of the calyx and pedicels, in the red flesh of the fruit and in the yellowish green color of the foliage.

***Crataegus tenuiloba* Sarg.**

River bank south of Rochester. The thin lobed thorn has ovate or broadly ovate leaves and is similar in its general characters to the two preceding species but it differs from them in having smaller, fewer flowered clusters and in its bright scarlet fruit which is gradually narrowed toward the base.

***Crataegus colorata* Sarg**

Genesee Valley park, Rochester. It has also been found at Murray, Orleans co. by M. S. Baxter and at Buffalo by J. Dunbar. It differs from the five preceding species in having its ripe fruit crimson instead of scarlet. Its stamens are 10, anthers rose-red and styles 3-4. Its branches bear numerous spines which are slender or stout, straight or curved.

***Crataegus beckwithae* Sarg.**

Genesee Valley park, west side of the river, Rochester. The Beckwith thorn differs from all the preceding species of this section in its globose fruit. It is sometimes full and rounded at the base and sometimes pointed. It is dark crimson when ripe and its flesh is tinged with red. The calyx lobes at flowering time are marked on the inside toward the tips with minute white dots. This peculiar character is present in all our flowering specimens. The leaves are broadly ovate or almost triangular. On vigorous young shoots some of them are slightly cordate.

***Crataegus dunbari* Sarg.**

East bank of the Genesee river in the northern part of Rochester. It has also been found at Adams Basin by M. S. Baxter and in Delaware park, Buffalo by J. Dunbar. The Dunbar thorn differs decidedly from all the preceding species of this section in its leaves which are oval or suborbicular and become much thicker and firmer with age. The fruit is globose or subglobose and crimson when ripe. The stamens are 10, anthers red, styles 3-4.

***Crataegus benigna* Sarg.**

Genesee Valley park, Rochester. The benignant thorn is unlike any of the previously recorded species of this section in having 15-20 stamens. The anthers are red and the fruit, which is longer than broad, is scarlet. The leaves are often truncate or slightly cordate at the base, specially on leading vigorous shoots.

***Crataegus cupulifera* Sarg.**

Seneca park, west side, Rochester. It has also been found at Rush and Honeoye lake by M. S. Baxter, and at Buffalo by J. Dunbar. The cup-bearing thorn has the flowers cup-shaped. The stamens are 10, the anthers pink, the styles 3-4 and the calyx lobes hairy inside. The fruit is globose or nearly so and is scarlet when ripe.

***Crataegus macauleyae* Sarg.**

Genesee Valley park, Rochester. The Macauley thorn may readily be distinguished from the preceding one by its 20 stamens with pale yellow anthers. It has 4-5 styles and its ripe fruit is crimson and has a more prominent calyx rim. The fruit in both is nearly alike in size and shape. Both species belong to the section Coccineae.

***Crataegus gemmosa* Sarg.**

Genesee Valley park, Rochester. In this species the leaves are oval or occasionally rhomboidal or obovate. The stamens are 20,

anthers rose-red and styles 2-3. The ripe fruit is scarlet, a little longer than broad and crowned with a calyx rim. The calyx lobes are hairy inside, reflexed and fringed on the margin with long stipitate glands.

***Crataegus deweyana* Sarg.**

Hagaman swamp near Rochester. It has also been found at Rush by M. S. Baxter. In the Dewey thorn the leaves are ovate or broadly ovate and sharp pointed or acuminate. The stamens are 7-10, the anthers dark rose-red and the styles 2-3. The ripe fruit is scarlet, globose or subglobose and destitute of a calyx rim. The calyx lobes are not strongly or conspicuously glandular serrate.

***Crataegus ferentaria* Sarg.**

Near the roundhouse of the Pennsylvania Railroad, Rochester. The light armed thorn has oval or rhomboidal leaves acute at the apex and rounded or broadly cuneate at the base. The petioles are generally less than half an inch long and they often become red toward the end of the season. The stamens are 10, anthers pale yellow, styles two and calyx lobes distinctly glandular serrate. The ripe fruit is crimson, globose or subglobose and destitute of a prominent calyx rim. The ventral cavities of the nutlets are deep and sometimes crowd upon or cut through the lateral walls.

***Crataegus laneyi* Sarg.**

Genesee Valley park, Rochester. The Laney thorn may be distinguished from the three preceding species by its having 10-15 stamens, pale yellow anthers, 2-4 styles and a villose inflorescence. It and the other three species mentioned belong to the section *Tomentosae*.

***Crataegus tatnalliana* Sarg.**

North and west of North Albany. In this plant the fruit is globose or oval, and the leaves are often more or less twisted or contorted on the margin, as if there was an excessive development of tissue in that part of the blade. In the leaves of *C. pringlei* the reverse condition appears to prevail. The margin of the leaf is decurved, apparently because of a deficient development of the marginal tissue or an excessive development of the central portion of the leaf. This makes the leaf convex above, concave beneath.

***Crataegus hudsonica* Sarg.**

Tivoli hollow between Albany and West Albany. This species is closely related to *C. suborbiculata* Sarg. and like that species it has suborbicular leaves. It differs from it in having the

leaf lobes more sharp pointed, in having fewer styles and nutlets and in its globose mostly drooping and uniformly red fruit. Its styles and nutlets are generally 3. Its flowers open about May 20 and its fruit is ripe about the middle of October.

Of the 35 species of *Crataegus* here recorded, specimens of 33 were collected in and near Rochester. In order to indicate more clearly the distinguishing features of the Rochester species, some of which resemble each other very closely, the following synoptic tables of the sections and species have been prepared. The table of the sections is intended to include only the Rochester species. A few species found in and about Rochester but not recorded in the preceding pages, they having been previously reported, have been included in the table of species. They are *Crataegus crus-galli*, *C. punctata*, *C. pringlei*, *C. holmesiana*, *C. matura*, *C. macracantha*, *C. succulenta* and *C. tomentosa*.

Synopsis of the sections

- Nutlets with the ventral faces excavated.....Tomentosae
- Nutlets with the ventral faces not excavated..... 1
- 1 Leaves gradually narrowed to a short petiole..... 2
- 1 Leaves not having this character..... 3
 - 2 Upper surface of the leaves shining..... Crus-galli
 - 2 Upper surface of the leaves not shining..... Punctatae
- 3 Fruit large, more than 6 lines long..... 4
- 3 Fruit medium or small, 6 lines long or less..... 5
 - 4 Flower clusters hairy, ripe fruit more or less hairy
except in *C. spissiflora*..... Molles
 - 4 Flower clusters hairy or glabrous, ripe fruit glabrous
except in *C. acclivis*..... Lobulatae
- 5 Fruit distinctly pruinose before ripening.....Pruinosae
- 5 Fruit not distinctly pruinose before ripening..... 6
 - 6 Leaves thin, glabrous except when young.....Tenuifoliae
 - 6 Leaves becoming thick or subcoriaceous with age..... 7
- 7 Fruit falling while yet hard.....Intricatae
- 7 Fruit becoming soft before falling.....Coccineae

Synopsis of the species

CRUS-GALLI		
Stamens 10		<i>C. crus-galli</i>
Stamens 10-20		<i>C. persimilis</i>
PUNCTATAE		
Stamens 20		<i>C. punctata</i>

MOLLES

Stamens 15-20	<i>C. fulleriana</i>	
Stamens 8-10		1
1 Ripe fruit hairy		2
1 Ripe fruit glabrous	<i>C. spissiflora</i>	
2 Some of the mature leaves convex	<i>C. pringlei</i>	
2 None of the mature leaves convex	<i>C. ellwangeriana</i>	

LOBULATAE

Stamens 20	<i>C. durobrivensis</i>	
Stamens 10	<i>C. pedicellata</i>	
Stamens 5-8		3
3 Fruit hairy	<i>C. acclivis</i>	
3 Fruit glabrous	<i>C. holmesiana</i>	

PRUINOSAE

Stamens 15-20, anthers red or maroon		4
Stamens 15-20, anthers pale yellow or whitish		5
Stamens 7-10		6
4 Anthers dark maroon color	<i>C. beata</i>	
4 Anthers red	<i>C. lennoniana</i>	
5 Fruit ripe in November, calyx rim prominent	<i>C. leiophylla</i>	
5 Fruit ripe in October, calyx rim absent	<i>C. formosa</i>	
6 Fruit longer than broad		7
6 Fruit not longer than broad		8
7 Fruit bitter, anthers red	<i>C. compta</i>	
7 Fruit sweet, anthers purple	<i>C. diffusa</i>	
8 Leaves on vigorous shoots often trilobed, anthers red	<i>C. opulens</i>	
8 Leaves on vigorous shoots not trilobed, anthers purple	<i>C. maineana</i>	

INTRICATAE

Fruit subglobose, 6 lines long	<i>C. baxteri</i>	
Fruit oblong or obovate, 4-5 lines long	<i>C. verecunda</i>	

TENUIFOLIAE

Fruit longer than broad		9
Fruit not longer than broad		14
9 Stamens 5-6, anthers pink, fruit crimson	<i>C. parviflora</i>	
9 Stamens 7-10, anthers red, fruit scarlet	<i>C. streeterae</i>	
9 Stamens 7-10, anthers purple, fruit scarlet	<i>C. glaucophylla</i>	
9 Stamens 10		10
9 Stamens 15-20	<i>C. benigna</i>	

- 10 Fruit narrowed toward the base, obconic *C. tenuiloba* 11
 10 Fruit not obconic 11
 11 Ripe fruit scarlet 12
 11 Ripe fruit crimson 13
 12 Pedicels and calyx glabrous *C. ornata*
 12 Pedicels and calyx slightly hairy *C. rubicunda*
 13 Fruit ripe in August *C. matura*
 13 Fruit ripe in September *C. colorata*
 14 Leaves triangular ovate, styles 5 *C. beckwithae*
 14 Leaves oval or suborbicular *C. dunbari*

COCCINEAE

- Stamens 10, anthers pink, fruit scarlet *C. cupulifera*
 Stamens 20, anthers pale yellow, fruit crimson
C. macauleyae

TOMENTOSAE

- Stamens 20, anthers red 15
 Stamens 10, anthers pale yellow 16
 Stamens 7-10, anthers red *C. deweyana*
 Stamens 10-15, anthers pale yellow *C. laneyi*
 15 Leaves ovate or ovate oblong *C. tomentosa*
 15 Leaves elliptic *C. succulenta*
 15 Leaves orbicular *C. gemmosa*
 16 Fruit drooping, spines 1.5-2.5 inches long *C. ferentaria*
 16 Fruit erect, spines 2.5-4 inches long *C. macracantha*

Dipsacus laciniatus L.

Near Beaver park, Albany. August. This is a recently introduced species but it appears to be well established here but being within the city limits it may not persist many years. It may be distinguished from the common teasel, *D. sylvestris*, by its lacinate or pinnatifid leaves. Its flowers are paler than in that species.

Eocronartium typhuloides Atk.

Living moss, *Anomodon attenuatus*. Cascadilla woods near Ithaca. July. G. F. Atkinson.

Falcata pitcheri (T. & G.) Kuntze

North Greenbush and West Albany. This species is not very unlike *F. comosa*, (*Amphicarpaea monoica* of the older botanies) with which it was formerly united. It is chiefly distinguished by its larger leaves and the tawny villosity of its stem.

Fusarium aquaeductuum R. & R.

Refrigerator drains. Geneva. September. F. C. Stewart. Our specimens of the "refrigerator fungus" were taken from the drain-pipe of a house refrigerator. The fungus sometimes multiplies till it chokes the drain and stops the outflow of the water.

Galera capillaripes Pk.

North Elba, Essex co. August. This little mushroom resembles *Galera tenera* in color, but it is much smaller and has a very slender, almost filiform stem, more narrow and distant lamellae and smaller spores.

Geranium bicknellii Britton

Ledges and rocky places. Near Brownsville, Jefferson co. June. C. H. Peck. Little Falls. October. J. V. Haberer.

Gyrostachys ochroleuca Rydb.

Roadsides and pastures in rather dry soil. Lake Pleasant. August. C. H. Peck. Dry hillsides, near Ballston lake. S. H. Burnham. This species is closely allied to *G. cernua*.

Hexagona micropora Murrill

Dead branches. Verona, Oneida co., and South Bay, Madison co. July.

This species is closely related to and was formerly included in *Hexagona alveolaris* (DC.), which is equivalent to *Favolus europaeus* Fr. It may be separated from it, by its smoother pileus and smaller pores.

Hypholoma rugocephalum Atk.

Low moist ground. Port Jefferson. August. G. F. Atkinson. This species is at once recognizable by its brown rugose pileus.

Hypomyces banningiae Pk.

Parasitic on some mushroom which it transforms to such a degree as to render it unrecognizable. Pittsford, Monroe co. August. F. S. Boughton.

Hypomyces inaequalis Pk.

Parasitic on *Amanita rubescens*. Catskill mountains. F. H. Mickleborough. The parasite prevents the expansion of the pileus and whitens both stem and pileus. In the preceding species the spores have no septum, in this one they have a single septum near one end. They are therefore divided into two unequal parts and this suggests the specific name.

Lachnocladium semivestitum B. & C.

Low marshy places. Smithtown. August. G. F. Atkinson. This fungus might easily be mistaken for a species of *Clavaria*, but careful inspection shows that it is clothed toward the base by a minute downy white tomentum.

Lactarius brevis n. sp.

PLATE Q, FIG. 1-5

Pileus thin, broadly convex, plane or slightly depressed in the center, glabrous, azonate, whitish, sometimes with a slight alutaceous tinge, flesh white, milk whitish, quickly changing to sulfur yellow on exposure to the air, taste acrid; lamellae thin, narrow, crowded, adnate, whitish or pallid; stem short, equal or slightly tapering downward, solid or somewhat spongy within, glabrous, white; spores subglobose, .0003 of an inch long, .00025-.0003 broad.

Pileus 1-2 inches broad; stem about 1 inch long, 2-4 lines thick. This species is closely related to *L. theiogalus* from which it may be separated by its white or whitish color, its smaller size, solid or stuffed stem and the absence of tomentum from the base of the stem.

Lactarius colorascens n. sp.

Pileus thin, nearly plane, becoming centrally depressed, moist, glabrous, whitish or pallid when young, becoming brownish red with age, milk white, changing to sulfur-yellow on exposure to the air, taste bitter; lamellae thin, close, adnate or slightly decurrent, whitish, becoming yellowish with age; stem equal, solid, even, whitish, becoming brownish red with age; spores globose, rough, .0003 of an inch in diameter.

Pileus 1-2 inches broad; stem 1-1.5 inches long, 2-3 lines thick.

Woods. Port Jefferson. August. G. F. Atkinson. In the mature plant the color is similar to that of *L. camporatus*, but the species is very distinct in the color of its milk and in its bitter taste.

Pholiota appendiculata n. sp.

PLATE P, FIG. 8-17

Pileus fleshy, firm, broadly convex or nearly plane, viscid when moist, shining, squamose with appressed spotlike scales, appendiculate on the margin with fragments of the veil, dark red when young, soon fading to pink and sometimes becoming yellowish brown or grayish brown, flesh at first purplish red, specially in the lower part, whitish or pale yellow when mature; lamellae thin,

close, rounded behind, adnexed or decurrent with a tooth, pale yellow or almost white, becoming brownish; stem short, firm, solid or with a small cavity, white above, brownish and squamose below the slight evanescent annulus, white within, the veil white, at first concealing the young lamellae, soon breaking into fragments and partly adhering to the margin of the pileus, partly to the stem.

Pileus 1-3 inches broad; stem about 1 inch long, 2-4 lines thick.

Decaying sawdust. McLean, Tompkins co. July. The annulus consists of a row of scales or fragments of the veil around the upper part of the stem, the greater part of the veil usually adhering to the margin of the pileus. The color of the spores prevents the reference of the species to the genus *Hypholoma*.

***Salix serissima* (Bail.) Fern.**

North Elba and Lake Bonaparte. June. This willow has recently been separated from *Salix lucida* to which it was formerly joined as a variety. Its leaves are merely acute or short pointed at the apex, paler on the lower surface, very finely glandular serrate, the petioles have 1-3 pairs of glands at the top and the fertile aments are very late in ripening their capsules.

***Scirpus occidentalis* (Wats.) Chase**

Oneida lake, Thompson lake and Lake Bonaparte. This bulrush was formerly considered a variety of *Scirpus lacustris*, but it has recently been published as a distinct species. It is distinguished from *S. lacustris* by its two cleft style, its smaller lenticular achene and its pubescent scales.

***Sisyrinchium arenicola* Bickn.**

Sand barrens between Rossville and Kreischerville, Richmond co. May. S. H. Burnham.

***Stachys sieboldi* Miq.**

Cinder dumps along the railroad north of Whitehall. September. S. H. Burnham. Introduced.

***Teucrium boreale* Bickn.**

Low moist ground. South side of Oneida lake. J. V. Haberer.

***Uredinopsis atkinsonii* Magn.**

Living fronds of the marsh shield fern, *Dryopteris thelypteris*. Near Ithaca. August. G. F. Atkinson.

Uredinopsis osmundae Magn.

Living or languishing fronds of cinnamon fern, *Osmunda cinnamomea*. Near Malloryville, Tompkins co. August. G. F. Atkinson.

Viola amoena LeConte

Wet places. Common in hilly and mountainous districts. In *Flora of the State of New York* this is united with *Viola blanda*, but as the tendency at the present time is toward the separation of closely related forms it seems best to restore this violet to its original specific rank.

Viola latiuscula Greene

Light gravelly soil. Minerva. This species was found in flower early in May. In our specimens the lower leaves have a slight purplish tinge.

Viola septentrionalis Greene

Borders of woods and grassy places. Warrensburg, Warren co., and Minerva, Essex co. The northern blue violet was found in flower the last week of May. Its lower leaves are small, reniform or suborbicular, its upper ones are bluntly pointed and its sepals are ciliate.

Xyris montana Ries

Borders of White lake, Forestport, Oneida co. July. J. V. Haberer. It also occurs in Cranberry marsh, Sandlake, Rensselaer co. It was formerly thought to be a variety of *X. flexuosa*, but it is now separated as a distinct species.

Zygodesmus granulosis Pk.

Decaying wood of poplar. East Schaghticoke. August.

REMARKS AND OBSERVATIONS

Agaricus abruptus Pk.

In his *Monograph I*, p. 348, Elias Fries described a mushroom under the name *Agaricus abruptus*. In *Hym. Eur.*, p. 245, he placed this species in his subgenus *Flammula*, still retaining for it the original name. In *Sylloge* the subgenus *Flammula*, with many other subgenera of Fries, was given generic rank and the name *Agaricus abruptus* was changed to *Flammula abrupta*, thus vacating the name *Agaricus abruptus* and leaving it available for some other application. But Rule 5 of what is known as the Rochester code forbids the use of such names, and though this rule may not be accepted in its present form by the coming international congress

of botanists, I have thought it best to change the name *Agaricus abruptus* Pk. and several other names given under similar conditions, so that they shall not conflict with this rule. I therefore substitute the name

Agaricus abruptibulbus for *Agaricus abruptus* Pk. N. Y. State Mus. Mem. 4, p. 163

Agaricus chlamydopus for *Agaricus cothurnatus* Pk. Torr. Bot. Club Bul. 31, p. 181

Agaricus halophilus for *Agaricus maritimus* Pk. Torr. Bot. Club Bul. 26, p. 66

Agaricus magniceps for *Agaricus magnificus* Pk. Torr. Bot. Club Bul. 26, p. 67

Agaricus micromegethus for *Agaricus pusillus* Pk. N. Y. State Mus. 54th An. Rep't, p. 152

Agaricus praerimosus for *Agaricus tabularis* Pk. Torr. Bot. Club Bul. 25, p. 325

Agaricus pilosporus for *Agaricus sphaerosporus* Pk. Torr. Bot. Club Bul. 31, p. 181

Agaricus cothurnatus Fr. is considered in *Sylloge* the equivalent of *Stropharia cothurnata* Fr. In like manner

Agaricus maritimus Fr. is *Inocybe maritima* Fr.

Agaricus magnificus Fr. is *Amanita magnifica* Fr.

Agaricus pusillus Pers. is *Volvaria parvula* Weinm.

Agaricus tabularis Pers. is *Tricholoma grammopodium* (Bull.)

Agaricus sphaerosporus Krombh. is *Lepiota naucina* Fr.

***Antennaria canadensis* Greene**

Near North Albany. May. This species is common in the northern and eastern part of the State, but the staminate plants are rarely seen. I have found them only in the single locality here indicated.

***Blephariglottis ciliaris* (L.) Rydb.**

Karner. July. This is *Habenaria ciliaris* R. Br. in Gray's *Manual*. It is a rare species in our State at the present time, but it is said to have been more common many years ago. In New York State Cabinet of Natural History, 18th Rep't, p. 136,

it is recorded as having been found on the Pine plains of Schenectady but in my numerous botanizing trips in this region it was not found till this year. It appears to have recently become established in the Karner locality, as it was found in a place frequently visited before. The plants were few and were growing among low shrubs in a rather dry place. The flowers are very beautiful.

***Blephilia hirsuta* (Pursh) Torr.**

Low moist ground. East Schaghticoke. August. Rare.

***Botrychium obliquum* Muhl.**

This grape fern is common in Oneida county, and is as variable as it is common. Dr Haberer has collected numerous specimens of it in the vicinity of Utica and has contributed to the herbarium a fine series of specimens representing all of our published varieties of it.

***Cantharellus cinnabarinus* Schw.**

This small chantarelle was found in abundance near Port Jefferson in August. In one station several forms of it were growing in close proximity. In one form the whole plant had the usual cinnabar red color, but in some of the plants the stem was hollow. In another form the color of the pileus and stem was red as usual, but the lamellae were yellow. In a third form the cap was pale pink as if its normal color had faded. A fourth had pale pink lamellae and the margin of the pileus was strongly curved upward, making the pileus appear narrow and giving the whole plant a club shape. In a fifth form the whole plant was yellow. In all except the first the stem, so far as investigated, was hollow. But the most remarkable thing in the variations is the difference in the color of the spores. We are disposed to consider the color of the spores in any given species as one of its most constant and reliable characters. But in this case the plants with red or pink lamellae had spores that appeared pink in the mass, those with yellow lamellae shed yellow spores. Yet the spores were alike in size and shape, and we are obliged to conclude that all these forms belong to one species.

***Carex castanea* Wahl.**

This rare sedge was credited to Essex county in the *Flora of the State of New York*, on the authority of Dr Kneiskern. In my own explorations in the county I had never met with it till the past season. It was found growing sparingly near Minerva. It is an early flowering species. It is *Carex flexilis* Rudge.

Carex formosa Dew.

This rare species was found in Seneca park, Rochester, on June 1. It was then in good condition for collecting.

Carex setifolia (Dew.) Britton

Limestone rocks, cliffs and precipices are generally given as the habitat of this pretty little sedge. But it is not limited to such places. Fine specimens of it were found in July growing in wet, mucky soil in woods about Bergen swamp. In more open wet places near it the rare *Carex crawei* Dew. was found.

Cercospora circumscissa Sacc.

This fungus was plentiful in the region about Lake Pleasant the past season. It attacks the living leaves of the chokecherry and the wild blackcherry. It kills the leaf tissues in small circular spots, and the dead tissues soon separate from the living and fall, leaving clean-cut circular perforations in the leaf.

Cypripedium reginae Walt.

A form of this showy species occurs in Bonaparte swamp in which the whole flower is white.]

Eleocharis palustris vigens Bail.

This is a tall stout variety growing in shallow water. It was found growing in Oneida lake at Lakeport and specimens were collected. Variety *glaucescens* was found growing in low wet places at South Bay and in Bonaparte swamp. Judging from the external appearance alone it would be difficult to believe that these two plants are varieties of the same species.

Eriophorum alpinum L.

The alpine cotton grass is now plentiful in one place in Bonaparte swamp though it was not seen in my exploration of the swamp in 1899. It is also abundant in an old meadow near Elm lake in Hamilton county.

Fragaria americana (Porter) Britton

This strawberry is abundant in groves and the borders of woods at Lake Bonaparte. The flowers are scarcely more than 3 lines broad.

Gratiola aurea Muhl.

Fine specimens with slender weak stems a foot or more long were found growing in the marshy borders of a lake near Smithtown, Suffolk co.

***Hieracium praealtum* Vill.**

This noxious weed has become very abundant in Lewis county. From Lyon Falls to Carthage it is plentiful along the railroad, in pastures and meadows and by roadsides. It is also common along the Carthage and Adirondack Railroad. It rivals buttercups and daisies in giving color to meadows infested by it. The orange hawkweed, *Hieracium aurantiacum*, which is associated with it in some places and which is no less pestilential, was not seen here.

***Hydnum adustum* Schw.**

An unusual form of this fungus was found in the western part of the State by G. E. Morris. The pileus is shaped like the bowl of a goblet by the upward curving of its margin and the stem is central. The whole plant is white.

***Hygrophorus laurae decipiens* n. var.**

Pileus thin, stem slender, less than 6 lines thick, generally cepitose and attenuated at the base, pileus not changing color in drying, gills also nearly unchangeable. Edible. Near Elm lake, Hamilton county. September.

***Hypholoma sublateralitium* (Schaeff.) Fr.**

In October specimens of the brick-red hypholoma were sent to me with the statement that two persons who had eaten stewed mushrooms of this kind had been made sick by them. In one case "a severe headache with tingling and numbness in hands and arms and a feeling of general weakness and relaxation" developed in 15 hours after eating and lasted half an hour. In the other case the person "was attacked with violent nausea and purging." The difference in the symptoms of the two persons and the long time between the eating and the development of the symptoms led me to think that the mushrooms were not responsible for the sickness. It seemed to me that by some mistake the samples sent me were not the same kind as those that had been eaten or that the sickness was due to some other cause. As the samples sent me were still in fairly good condition, I concluded to try their edible quality myself. Three caps were selected, fried with butter and eaten. No harm and no unpleasant results followed, and my opinion of the innocence of the mushrooms was confirmed.

It is proper to add that in the typical form of the species the taste is said to be bitter, but in these specimens no bitter flavor was perceptible, though in other respects they exhibited the characters of the species.

***Juniperus nanus* Willd.**

A large form of this juniper occurs at Lake Bonaparte. It forms circular patches as usual, but the branches are more erect and much taller. They are 6-8 feet tall and have a basal diameter of 2-4 inches. The leaves are 4-6 lines long and sometimes abruptly sharp pointed, sometimes gradually tapering into a subulate point. This form seems to make an approach toward *Juniperus communis*.

***Limnorchis dilatata linearifolius* Rydb.**

Hidden lake, Herkimer county. J. V. Haberer. This variety may be distinguished from the typical form of the species by its more narrow linear leaves.

***Marasmius resinosus niveus* Pk.**

As there is a *Marasmius niveus* Mont. a rigid observance of the rules of the Rochester code requires that this variety name should be changed. I therefore substitute for the name given in the report for 1902, p. 38, *Marasmius resinosus candidissimus*.

***Osmunda claytoniana* L.**

This common fern sometimes grows in "fairy rings." Three examples of this kind of growth were seen at Lake Pleasant. In one there was a continuous line of fronds forming an ellipse of which the long diameter was about 3 feet. In another they formed about three fourths of the circumference of a circle, the line being interrupted in one place. In the third example the line was continuous and formed the circumference of a circle of which the diameter was about 2 feet. All the rings were near each other in a meadow.

***Oxalis cymosa* Small**

This is a common species in the eastern part of the State. It is very variable, being glabrous or villose above and glabrous below or wholly villose. Its flowers are usually yellow, but sometimes they are very pale yellow or almost white. The color of the stem and leaves varies from yellowish green to purplish brown.

***Phacelia dubia* (L.) Small**

Near Jamesville, Onondaga co. May. Mrs L. L. Goodrich. The specimens are in fine flowering condition. Specimens collected and sent by Mrs Goodrich in October 1903 were also in flower. The two sendings show that the plant may flower either in spring or in autumn.

Picea canadensis (Mill.) B. S. P.

Lake Pleasant. June. The white spruce occurs sparingly in various parts of the Adirondack region. All of our spruces as well as the hemlock drop their leaves from the drying branches in consequence of which it is difficult to prepare satisfactory herbarium specimens. I have tried in various ways to overcome this difficulty and have inquired of many botanists both of this country and of Europe if they could tell me how to prepare specimens of these branches so that they might retain their leaves. Recently Mr William Richards gave me a recipe which was intended to meet this difficulty. It was taken to a druggist who prepared a sufficient quantity for trial. As soon as opportunity was given, specimens of suitable size both of the white spruce and the black spruce were taken and treated according to directions. The result has been quite satisfactory. The specimens have dried and retained their leaves to the present time. The color of the leaves is slightly affected, but the specimens are far more satisfactory than the bare twigs with leaves placed in packets by themselves. For the benefit of any who may wish to avail themselves of this method of preparing specimens of this kind a copy of the recipe is here given.

Recipe

For the treatment of fresh herbarium specimens of spruce and hemlock trees to prevent the leaves from falling from the twigs.

alum	500 gr.
salt	125 "
saltpeter	60 "
potash	300 "
white arsenic	100 "

Dissolve in 1 quart of water, cool and filter. To 1 quart of this solution add 4 quarts of glycerin and 1 quart of alcohol.

Immerse the fresh specimens in this mixture, letting them remain in it at least 48 hours. When taken out wash away any excess of mixture adhering to them with warm water.

After the external moisture has evaporated the specimens may be placed in drying papers and put in press in the usual way. When thoroughly dry they may be mounted on the herbarium sheets and placed in the herbarium.

Prunus americana Marsh.

This species of wild plum is common in the vicinity of Albany. It blossoms a little later than *Prunus nigra*. Its calyx lobes often terminate in two or three minute teeth.

***Prunus pennsylvanica* L. f.**

A small tree of the wild red cherry was observed at Lake Bonaparte, the ripening fruit of which was white. Is it an albino?

***Pterospora andromedea* Nutt.**

Port Henry. August. Miss H. A. Edwards. The contributed specimen is in fruiting condition, 35 inches long with a stem diameter of $\frac{5}{16}$ of an inch and bears more than 60 capsules. In *Flora of New York State* this species is credited to "various places in the vicinity of Albany," but it seems to have disappeared entirely from this locality. It is also credited to Port Henry, having been found there more than 60 years ago. It is gratifying to know that it still exists there.

***Rosa sayi* Schw.**

Griswold's Mills, Washington co. July. S. H. Burnham. This rose also occurs in the vicinity of Westport.

***Rudbeckia hirta* L.**

Two forms of this very common weed, both of which were new to the herbarium, were found by Miss C. S. Parsons in the western suburbs of the city.

***Rudbeckia laciniata* L.**

This plant is subject to the attacks of a gall-producing insect. Specimens sent by Mrs Burnham from Washington county have from 1-3 globular green galls developed from the side or base of each head of flowers. In one example a branch 1.5 inches long had developed at a right angle to the stem just beneath the flower head. The branch itself bore a flower head.

***Salix amygdaloides* Anders.**

A single tree of this species was found by Mr R. B. Hough at Lake Bonaparte. It is 25 or 30 feet tall, with a trunk diameter of about 8 inches. It extends the range of the species in our State farther north than before, but the species is known to occur still farther north in Canada. Its presence at Lake Bonaparte may be accidental, as only a single tree has yet been found there. To the six species of willow previously found in Bonaparte swamp, *Salix cordata* and *Salix nigra* should be added, making eight species in all.

***Sarracenia purpurea* L.**

Two specimens of the pitcher plant were found growing on the margin of the roadbed of the railroad that runs through Bona-

parte swamp. This roadbed is a sandy gravel of which a component part is decomposed crystalline limestone, which is abundant in that vicinity. The plants were only a few inches above the general level of the swamp. Both were in flower, but the flowers were very abnormal. Instead of the usual sepals, petals and stamens, there were numerous oblong or spatulate petaloid organs, green on the inner surface and more or less tinged with reddish brown on the outer. In one there were about 30, in the other about 45 of these pseudopetals. The ovary was imperfectly developed and the usual peltate stigmatic disk was transformed into erect irregular folded or crumpled leaflike lobes. The whole flower was suggestive of a "double blossom" of greenish petals. The unnatural habitat of limestone gravel and sand was the only apparent cause of the transformation. Other plants with flowers of the usual kind were growing near these, but in the soft wet soil of the swamp.

***Silene vulgaris* (Moench) Garcke**

Machias, Cattaraugus co. July. F. E. Fenno. This is a peculiar form having few flowered simple stems and narrowly elliptic or ovate leaves.

***Stereum spadiceum* Fr.**

A form of this species was found near Port Jefferson in which the pilei were crispate complicate as in *Stereum complicatum*.

***Vagnera stellata* (L.) Morong**

The fruit of the star-flowered Solomon's seal is described in our botanies as sometimes black, and sometimes green with six black stripes. A form was found in Bergen swamp the fruit of which was green with three black stripes.

***Viburnum lentago* L.**

The leaves of this species are described as ovate. A form was found near Delanson, Schenectady co. of which the leaves vary from very broadly ovate to nearly orbicular. Another form was found on Crown Point of which the leaves are oblong and pointed at each end. Its fruit is destitute of bloom and ripens earlier than in the typical form. This may prove worthy of varietal distinction.

***Viola palmata dilatata* Ell.**

Wooded hillside near Saugerties. May. In these specimens some leaves have the broad central lobe, others are not lobed at all. It seems to be intermediate between the variety and an entire leaved form.

***Viola papilionacea domestica* (Bickn.) Poll.**

Streets and waste places of Port Jefferson. August. This so called variety is so unlike the typical form of the species that to most minds it would be far more satisfactory to consider it a distinct species unless there are connecting forms.

EDIBLE FUNGI***Lepiota cepaestipes* Sow.****ONION-STEMMED LEPIOTA****PLATE 87, FIG. 1-5**

Pileus thin, fleshy in the center, ovate or obtusely conic, becoming campanulate or expanded, broadly umbonate, soon squamulose except in the center, dry, plicate striate on the thin margin, white, the umbo and squamules brownish, flesh white, taste mild; lamellae thin, narrow, close, free, white; stem slender, enlarged toward the base, slightly mealy pruinose or glabrous, stuffed or hollow, white, the slight annulus sometimes evanescent; spores white, .0003-.0004 of an inch long, .0002-.0003 broad.

The onion-stemmed lepiota takes its name from the peculiar shape of the lower part of the stem. There is an enlargement below the middle which gives the stem a shape similar to that of the flowering stem of an onion. The flesh of the cap is thin except in the center where it is thickened into a prominence or umbo. On the margin it is very thin and marked by closely placed radiating furrows or striations with narrow ridges or folds between them. The surface of the cap is covered by a dense flocculent coat or veil which soon breaks into minute scales or points and with the expansion of the cap they give it a roughened or dotted appearance. The veil however remains entire on the umbo and gives it a brownish color. The cap is dry, flexible and slightly tough. The gills are closely placed side by side and do not reach the stem. They are minutely floccose on the edge and white while young and fresh, but they assume a brownish hue with age or in drying, similar to that assumed by the gills of the smooth lepiota, *L. naucinoides*, under the same conditions.

The stem is rather long and except in the enlarged part is scarcely thicker than the stem of an ordinary tobacco pipe. Occasionally the enlargement is absent and the diameter of the stem is about the same from top to bottom. In the young plant it is stuffed with a webby pith, but usually it becomes hollow with age. The surface is covered with a slight mealiness but this may disappear when the plant is old. It is white or whitish. This mushroom generally

grows in tufts or close clusters in rich soil, tan bark, sawdust or decomposing vegetable matter. It is perhaps found quite as often in greenhouses or conservatories as in the open air. Our specimens were found growing in a bed of decaying sawdust in the open air. The heat generated by the decaying sawdust was doubtless very acceptable to it. A yellow form of the species is said to occur but I have not met with it in my explorations. In my trial of its edible qualities it seemed to me to have an excellent flavor but a slightly tough texture. According to one author "the entire fungus is tender and delicious cooked in any way."

Hygrophorus nitidus B. & C.

SHINING HYGROPHORUS

PLATE 88, FIG. 1-7

Pileus thin, fragile, convex, umbilicate, viscose, pale yellow, shining, and striatulate on the margin when moist, whitish when dry; lamellae arcuate, distant, decurrent, pale yellow; stem slender, viscose, hollow, colored like the pileus; spores broadly elliptic or subglobose, .00025-.0003 of an inch long, .0002-.00025 broad.

The shining hygrophorus is a small species of a beautiful yellow color throughout. Both cap and stem are very viscid and both are fragile. The cap has a conspicuous central depression or umbilicus. When moist, obscure radiating lines may be seen on the margin. These are merely the shadowy appearance of the gills beneath and are due to the thin translucent character of the margin. As the moisture escapes from the cap it becomes whitish and the shadowy lines disappear. The gills are wide apart and their inner end is gradually narrowed and extends downward on the stem. In dried specimens the interspaces are usually wrinkled or venose, specially in large specimens. The stem is rather long in proportion to the size of the cap. It is so viscid and fragile that it is difficult to pull a specimen from the ground without breaking it. In some cases the stem is gradually thickened as it enters the cap. It and the gills usually retain their color longer than the cap.

The cap is rarely more than 1 inch broad; the stem is 1.5-3 inches long and 1-2 lines thick. The species is generally gregarious in its mode of growth, but sometimes it is cespitose. It grows in moist soil full of humus in swamps or low damp places. As an edible mushroom it is not very important because of its small size, but it is tender and agreeable in flavor and may sometimes be convenient to add to a scanty supply of larger species. It is found in July and August.

Hygrophorus laurae decipiens Pk.

DECEIVING HYGROPHORUS

PLATE 88, FIG. 8-11

Pileus thin except in the center, broadly conic with involute margin when young, becoming convex or nearly plane, glutinose, white with a dingy yellow or smoky brown spot in the center, flesh white, taste mild; lamellae subdistant, adnate or decurrent, white; stem rather long, slender, viscid when moist, solid, attenuate at the base, white with white particles at the top; spores .00028-.0003 of an inch long, .00016-.0002 broad.

The deceiving hygrophorus is most closely related to the *laura* hygrophorus, from which it can scarcely be separated in the fresh or living condition. The thinner flesh of the cap, the more slender stem more constantly narrowed and pointed at the base and its tufted mode of growth are the principal marks of distinction in the fresh plant. It is likely to be taken for a slender tufted form of the *laura* hygrophorus and the persistency of its colors in drying is the chief reason for considering it a variety of the species instead of a mere form. The cap is 1.5-3 inches broad; the stem 1.5-2 inches long, 3-5 lines thick. It grows in tufts among fallen leaves in woods or their borders, and may be found in September. Its edible character is similar to that of the *laura* hygrophorus.

Boletus laricinus Berk.

LARCH BOLETUS

PLATE 89, FIG. 1-7

Pileus fleshy, broadly convex or nearly plane, viscid when moist, sometimes squamose, dingy white or grayish white, flesh white; tubes short, adnate or slightly decurrent, whitish when young becoming darker and brown with age, their mouths large, angular, subcompound; stem short, solid, annulate, reticulate above the ring, grayish or brownish below; spores brown, oblong .0004-.0005 of an inch long, .00016-.0002 broad.

The larch boletus takes its name from its place of growth. It always grows under or near larchtrees. It is closely related to the *Elba* boletus, *B. elbensis* Pk., which is found under or near tamarack trees in the northern part of our State. In the larch boletus the cap is paler and has no pinkish brown tint which often is seen on the cap of the *Elba* boletus. Its cap is sometimes adorned by brown or blackish scales which are easily rubbed or washed away, leaving the whitish cap entirely naked. The flesh is soft and white or whitish. The tubes are at first whitish but they change

with age to brownish and then to a dark sepia color. The mouths are large and angular. In some cases shorter dissepiments within the larger tubes give them the appearance of being composed of two or more smaller ones. The tube walls extend downward on the stem to the ring and by anastomosing give the reticulated appearance called *cribrose* in the older descriptions. This is one of the distinguishing characters between the larch *boletus* and the Elba *boletus*. I have not yet tested the edible qualities of the latter, but the former is worthy of a place among our esculent species. It was collected in October.

***Boletus rubropunctus* Pk.**

RED DOTTED BOLETUS

PLATE 90, FIG. 1-9

Pileus fleshy, very convex or broadly convex, glabrous, viscid and shining when moist, variable in color, pale red, crimson or bay red, flesh white; tubes plane or convex in the mass, depressed around the stem, their mouths small, round, pale yellow when young, becoming bright golden yellow; stem equal or slightly thickened toward the base, solid, punctate or minutely squamulose with red or pallid points, pallid or tinged with red; spores oblong fusiform, .0005-.0007 of an inch long, .0002-.00024 broad.

The red dotted *boletus* is a very variable species. The cap is strongly or slightly convex, smooth and shining, viscid when moist and covered with a thin tenacious pellicle which can be torn away like the skin from an overripe peach. In the young plant the thin margin sometimes extends a little beyond the mass of tubes. In color the cap may be pale red, bright red or crimson, reddish brown or chestnut color. The flesh is whitish, sometimes tinged with yellow. The tubes are plane or convex in the mass, depressed around the stem, pale yellow when young, becoming bright golden yellow with age. Their mouths are small and round. The stem is rather long and slender for the size of the cap, solid, equal in diameter in all its parts or sometimes slightly thicker at the base. It is marked with numerous small dots or points of a red, brownish or pallid color which at first sight suggests a similarity to the stem of a small specimen of *Boletus scaber*. The color of the stem may be whitish, pallid or reddish. The species is related to *Boletus inflexus* Pk. but it differs from it in having its tubes depressed about the stem, in its tube mouths being destitute of red granules and in its larger spores.

The cap is 1-2.5 inches broad; the stem is 1-3 inches long, 2-4 lines thick. It occurs in thin woods in July and August.

Boletus nobilis Pk. n. sp.

NOBLE BOLETUS

PLATE 91, FIG. 1-4

Pileus firm, convex, dry, glabrous, yellowish brown or reddish brown when young, becoming ochraceous or reddish ochraceous with age, flesh white, taste mild; tubes white and stuffed when young, becoming yellow or pale ochraceous with age, nearly plane in the mass, adnate or slightly depressed around the stem, the mouths small, round; stem equal or slightly thicker at the base, solid, glabrous, generally reticulated at the top, whitish or pallid; spores oblong fusiform, .0005-.0006 of an inch long, .0002-.00024 broad.

This large and fine species grows singly or in groups in thin woods and in cleared or bushy places. It belongs to the section *Edules*. It differs from the edible boletus, *B. edulis* in its tubes being less depressed around the stem and in having no green tint. From the related boletus, *B. affinis*, to which it is also closely allied, it is separated by its larger size, the paler color of the cap, the paler stem and its larger spores. The flesh is thin for the size of the cap and is yellowish next the tubes. The cap is 4-8 inches broad; the stem 3-6 inches long, 6-10 lines thick. It may be found in August. In preparing it for cooking the long tubes should be removed from the cap and be rejected with the stem.

Strobilomyces strobilaceus (Scop.) Berk.

CONELIKE BOLETUS

PLATE 92, FIG. 1-6

Pileus fleshy, firm, subglobose, hemispheric or convex, dry, covered with a dense thick coat of blackish or blackish brown tomentum which separates into prominent tufts or scales with intervening chinks or spaces of a pale gray or smoky white color, flesh whitish, changing to reddish on exposure to the air, then to blackish, tubes rather long, depressed around the stem, plane or convex in the mass, whitish when young and fresh, becoming red where wounded and then blackish, also becoming blackish or blackish brown with age; stem equal or tapering upward, solid, often sulcate at the top, covered with a tomentum similar to that of the pileus; spores blackish brown, globose or nearly so, rough, .0004-.0005 of an inch in diameter.

This boletus has such a peculiar shaggy appearance and blackish color and is so unlike any other mushroom in our flora that

it is scarcely possible to confuse it with any other. It grows in woods or their borders, generally only a few in place. The cap is usually 2-4 inches broad; the stem 2-5 inches long, 4-8 lines thick. It may be found from July to September. In preparing it for cooking use only the flesh of the caps, peeling away the tomentum from the upper surface and removing the somewhat tenacious tubes from the lower surface. It is harmless and though it may not be considered a first class mushroom for eating purposes, it is much better than none.

***Clavaria botrytoides* Pk. n. sp.**

GRAPELIKE CLAVARIA

PLATE 93, FIG. 5-7

Stem small, short, divided near the base into branches which are repeatedly and irregularly branched, the ultimate branches short, crowded, blunt, usually terminating in two or more blunt teeth or protuberances, red or pink at the tips when young, soon fading and becoming concolorous, stem and branches solid, flesh white, taste mild; spores narrowly elliptic or oblong, rusty brown or subcinamon, .0003-.0004 of an inch long, .00016-.0002 broad.

The grapelike clavaria is very closely related to the red tipped clavaria and probably has been confused with it. It may be separated from that species by its thinner stem, the fading or evanescent character of the color of the ultimate branchlets and by its shorter and differently colored spores. The tips of the branches in mature or old plants are whitish like the branches themselves, but often a few small branches may be found near the base of the plant which have red tips and are therefore presumably of later development. It is possible that these two clavarias have been confused in Europe for European mycologists do not agree in their description of the spore characters of the red tipped clavaria. Stevenson describes them as subhyaline, 12-15 μ long, 6 μ broad. Massee describes them as white, 8 μ long, 5 μ broad. In our plant the spores in mass have a rusty brownish or subcinamon color when collected on white paper and they are 8-10 μ long, 4-5 μ broad.

The plants are 2-4 inches tall and 1.5-3 inches broad. They grow in thin woods on rather poor soil and may be found in August and September. The edible qualities seem to me to be similar to those of the red tipped clavaria.

Clavaria pistillaris L.**LARGE CLUB CLAVARIA**

PLATE 93, FIG. 1-4

Club simple, large, soft, fleshy, glabrous, clavate or oblong clavate, obtuse, solid or slightly spongy within, even or nearly so, ochraceous buff, flesh white, taste mild; spores elliptic, .0004-.0005 of an inch long, .0002-.00024 broad.

The large club clavaria is not very common and is quite variable in size and shape. It is usually 2-6 inches long and 6-12 lines thick. Sometimes the club gradually enlarges from base to top, again it is swollen at the base and at the top or it may be nearly cylindric in the lower half and gradually enlarged upward in the upper half. Large thick specimens are sometimes cracked at the top, revealing the white flesh. The color is sometimes yellowish, sometimes ochraceous buff or tan color. It is often more highly colored at the top than toward the base. The plant is generally clean and free from the attacks of insects. It usually grows in a scattered manner, only a few specimens being found in a place, but occasionally it may form tufts of two or three plants. It grows in woods and may be found from August to September. The species is easily recognized and is not likely to be mistaken for any harmful mushroom. It is similar in its texture and flavor to the umbonate clavaria, *C. pistillaris umbonata*.

EXPLANATION OF PLATES

PLATE P

Cortinarius heliotropicus Pk.**HELIOTROPE CORTINARIUS**

- 1 Immature plant with unexpanded pileus
- 2 Immature plant with expanded pileus
- 3 Mature plant with unspotted pileus
- 4 Mature plant with spotted pileus
- 5 Vertical section of the upper part of an immature plant
- 6 Vertical section of the upper part of a mature plant
- 7 Four spores, x 400

Pholiota appendiculata Pk.**APPENDICULATE PHOLIOTA**

- 8 Young plant showing unbroken veil beneath the pileus
- 9 Young plant showing stem and pileus
- 10, 11 Two immature plants, one showing lamellae beneath the pileus



LEPIOTA CEPAESTIPES sow.
ONION-STEMMED LEPIOTA



FIG. 1-7 *HYGROPHORUS NITIDUS* B.&C. FIG. 8-11. *H. LAURAE* DECIPIENS PK.
SHINING HYGROPHORUS DECEIVING HYGROPHORUS



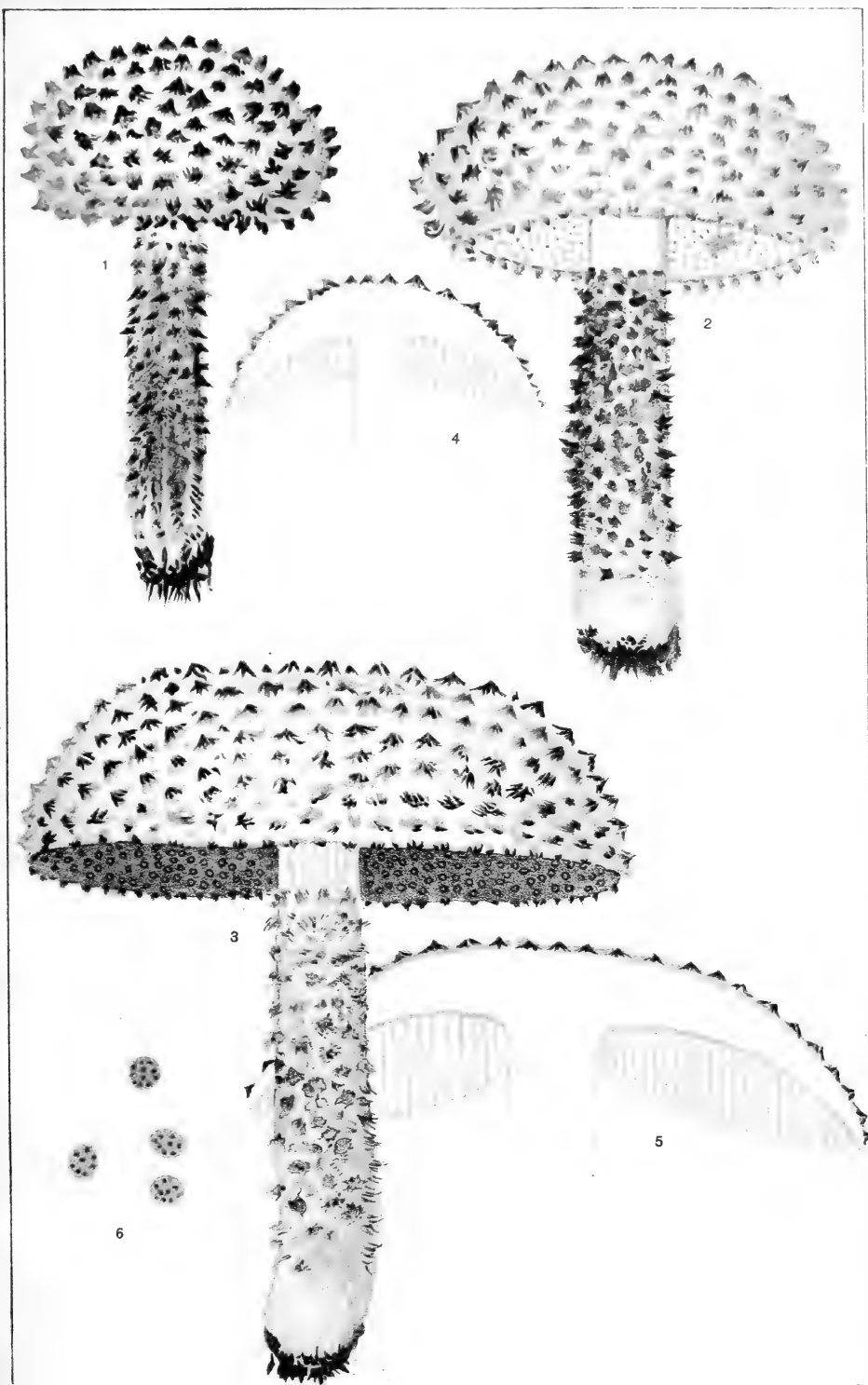
BOLETUS LARICINUS BERK.
LARCH BOLETUS



BOLETUS RUBROPUNCTUS PK.
RED DOTTED BOLETUS



BOLETUS NOBILIS PK.
NOBLE BOLETUS



STROBILOMYCES STROBILACEUS (SCOP.) BERK.
CONE-LIKE BOLETUS

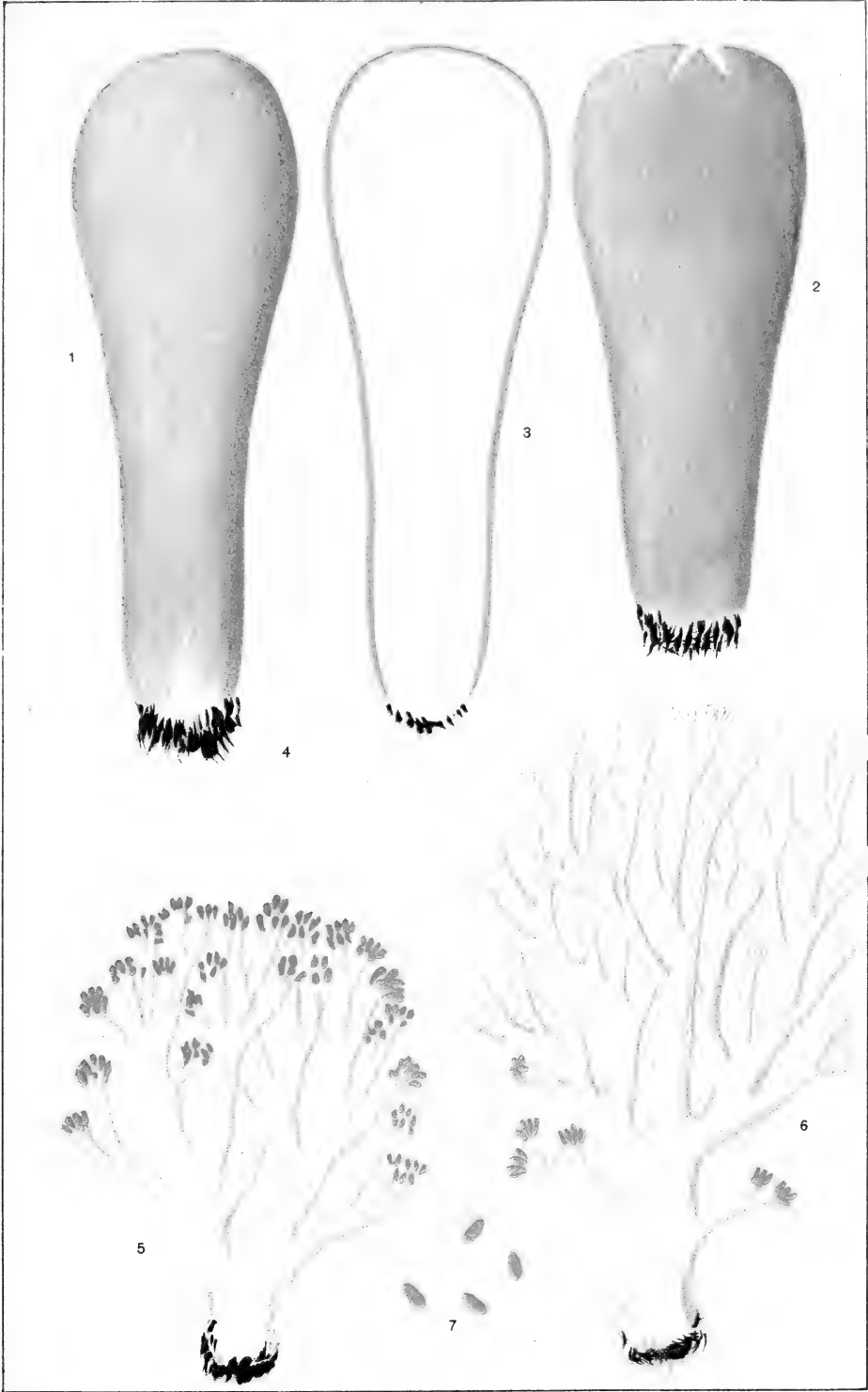


FIG. 1-4 CLAVARIA PISTILLARIS L.
LARGE CLUB CLAVARIA

FIG. 5-7 C. BOTRYTOIDES PK.
GRAPE-LIKE CLAVARIA

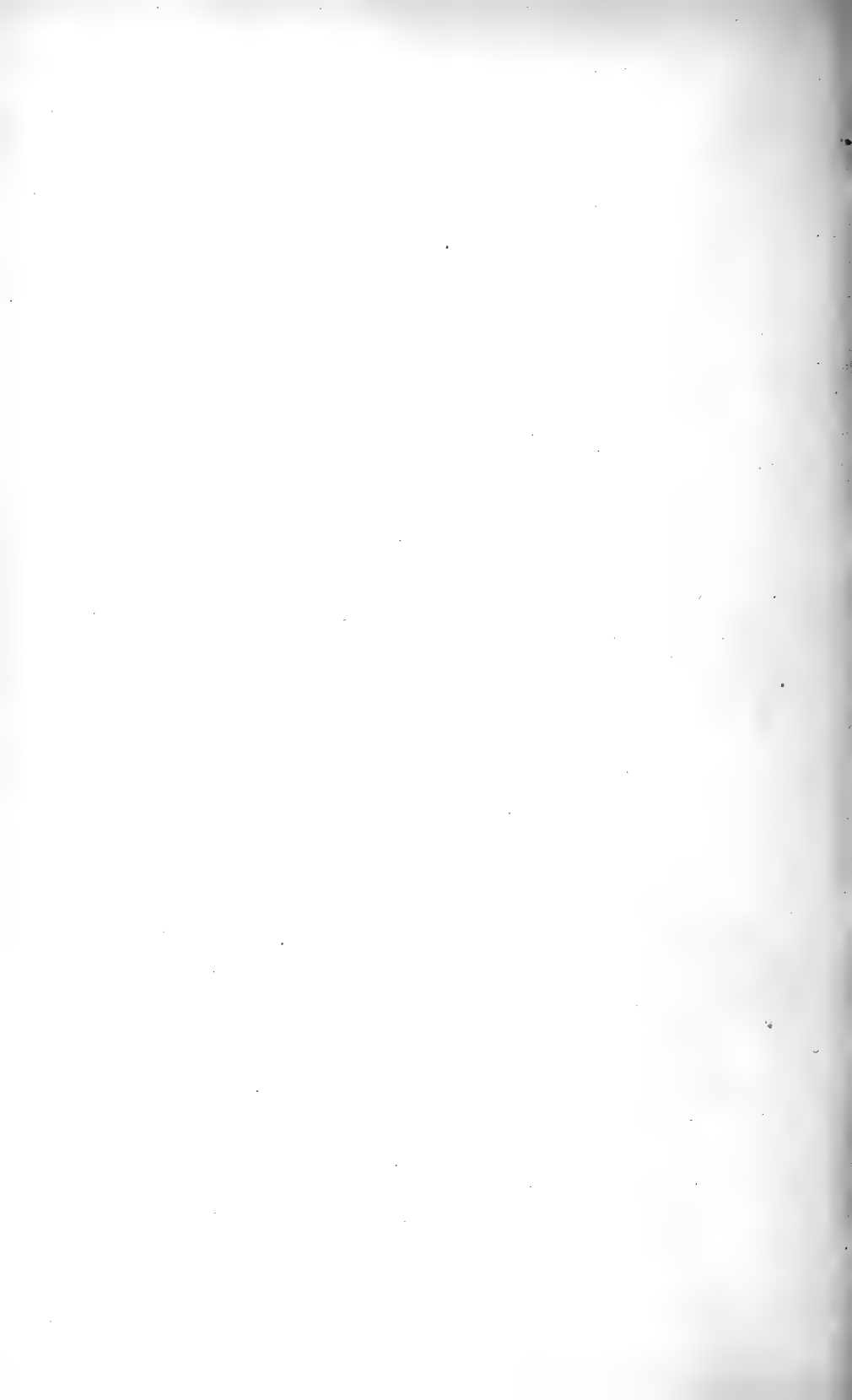


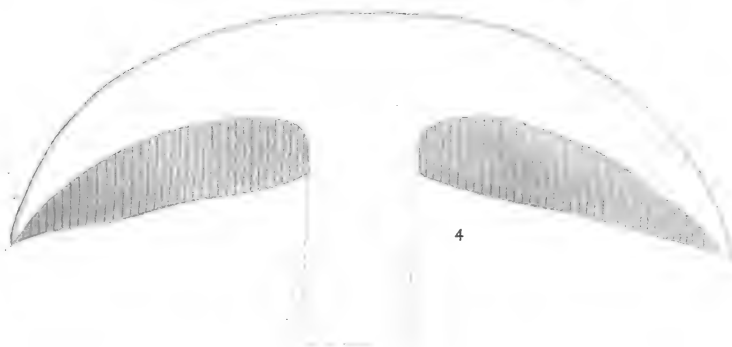
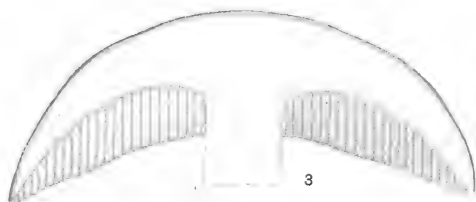
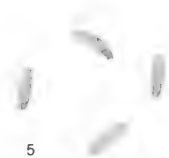


FIG. 1-7 *CORTINARIUS HELIOTROPICUS* PK. FIG. 8-17 *PHOLIOTA APPENDICULATA* P
HELIOTROPE CORTINARIUS *APPENDICULATE PHOLIOTA*



FIG. 1-5 LACTARIUS BREVIS PK.
SHORT LACTARIUS

FIG. 6-10 BOLETUS RUGOSICEPS PK.
ROUGH CAP BOLETUS



BOLETUS ATKINSONI PK.
ATKINSON'S BOLETUS

- 12, 13 Two mature plants, one showing lamellae beneath the pileus
- 14, 15 Vertical sections of two young plants
- 16 Vertical section of the upper part of a mature plant
- 17 Four spores, x 400

PLATE Q

Lactarius brevis Pk.

SHORT LACTARIUS

- 1 Young plant
- 2 Mature plant with convex pileus
- 3 Mature plant with fully expanded pileus
- 4 Vertical section of a plant showing the color which the flesh soon assumes on exposure to the air
- 5 Four spores, x 400

Boletus rugosiceps Pk.

ROUGH CAP BOLETUS

- 6 Young plant showing small pileus and large stem
- 7 Immature plant showing pale yellow tubes
- 8 Mature plant
- 9 Vertical section of the upper part of a plant
- 10 Four spores, x 400

PLATE R

Boletus atkinsoni Pk.

ATKINSON'S BOLETUS

- 1 Immature plant
- 2 Mature plant
- 3 Vertical section of the upper part of an immature plant
- 4 Vertical section of the upper part of a mature plant
- 5 Four spores, x 400

PLATE 87

Lepiota cepaestipes Sow.

ONION-STEMMED LEPIOTA

- 1 Cluster of three young plants
- 2 Cluster of six plants, four of them with caps mature
- 3 Vertical section of the upper part of a plant
- 4 Transverse section of a stem
- 5 Four spores, x 400

PLATE 88

Hygrophorus nitidus B. & C.

SHINING HYGROPHORUS

- 1, 2 Two plants with moist yellow caps
- 3, 4 Two plants after the excess of moisture has escaped
- 5 Vertical section of the upper part of a plant
- 6 Transverse section of a stem
- 7 Four spores, x 400

Hygrophorus laurae decipiens Pk.

DECEIVING HYGROPHORUS

- 8 Cluster of five plants with moist caps
- 9 One plant after the excess of moisture has escaped. The lower part of the stem has been removed
- 10 Vertical section of the upper part of a plant
- 11 Four spores, x 400

PLATE 89

Boletus laricinus Berk.

LARCH BOLETUS

- 1, 2 Two small young plants showing scales on the caps
- 3 One small but mature plant with no scales on the cap
- 4, 5 Two mature plants of usual size
- 6 Vertical section of the upper part of a plant
- 7 Four spores, x 400

PLATE 90

Boletus rubropunctus Pk.

RED DOTTED BOLETUS

- 1, 2 Two immature plants with red caps and reddish stems
- 3 An immature plant with paler cap and stem
- 4, 5, 6 Three mature plants
- 7 Vertical section of the upper part of an immature plant
- 8 Vertical section of the upper part of a mature plant
- 9 Four spores, x 400

PLATE 91

Boletus nobilis Pk.

NOBLE BOLETUS

- 1 An immature small plant
- 2 A mature plant of medium size
- 3 Vertical section of the upper part of a plant
- 4 Four spores, x 400

PLATE 92

Strobilomyces strobilaceus (Scop.) Berk.

CONELIKE BOLETUS

- 1 A small immature plant
- 2 A larger immature plant showing the whitish tube mouths
- 3 A mature plant of medium size
- 4 Vertical section of the upper part of an immature plant
- 5 Vertical section of the upper part of a mature plant
- 6 Four spores, x 400

PLATE 93

Clavaria pistillaris L.

LARGE CLUB CLAVARIA

- 1, 2 Two plants, one showing cracks in the apex
- 3 Vertical section of a plant
- 4 Four spores, x 400

Clavaria botrytoides Pk.

GRAPELIKE CLAVARIA

- 5 Immature plant with tips of branchlets red
- 6 Mature plant with most of the tips colored like the branches
- 7 Four spores, x 400

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New York State Education Department

New York State Museum

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Museum annual reports 1847-date. *All in print to 1892, 50c a volume, 75c in cloth; 1892-date, 75c, cloth.*

These reports are made up of the reports of the director, geologist, paleontologist, botanist and entomologist, and museum bulletins and memoirs, issued as advance sections of the reports.

Geologist's annual reports 1881-date. Rep'ts 1, 3-13, 17-date, O; 2, 14-16, Q.

The annual reports of the early natural history survey, 1837-41, are out of print.

Reports 1-4, 1881-84, were published only in separate form. Of the 5th report 4 pages were reprinted in the 39th museum report, and a supplement to the 6th report was included in the 40th museum report. The 7th and subsequent reports are included in the 41st and following museum reports, except that certain lithographic plates in the 11th report (1891) and 13th (1893) are omitted from the 45th and 47th museum reports.

Separate volumes of the following only are available.

Report	Price	Report	Price	Report	Price
12 (1892)	\$.50	17	\$.75	21	\$.40
14	.75	18	.75	22	.40
15, 2v.	2	19	.40	23	<i>In press</i>
16	1	20	.50		

In 1898 the paleontologic work of the State was made distinct from the geologic and was reported separately from 1899-1903. The two departments were reunited in 1904.

Paleontologist's annual reports 1899-1903.

See fourth note under Geologist's annual reports.

Bound also with museum reports of which they form a part. Reports for 1899 and 1900 may be had for 20c each. Those for 1901-3 were issued as bulletins. In 1904 combined with geologist's report.

Entomologist's annual reports on the injurious and other insects of the State of New York 1882-date.

Reports 3-19 bound also with museum reports 40-46, 48-57 of which they form a part. Since 1898 these reports have been issued as bulletins. Reports 3-4 are out of print, other reports with prices are:

Report	Price	Report	Price	Report	Price
1	\$.50	9	\$.25	15 (En 9)	\$.15
2	.30	10	.35	16 (" 10)	.25
5	.25	11	.25	17 (" 14)	.30
6	.15	12	.25	18 (" 17)	.20
7	.20	13	.10	19 (" 21)	.15
8	.25	14 (En 5)	.20	20	<i>In press</i>

Reports 2, 8-12 may also be obtained bound separately in cloth at 25c in addition to the price given above.

Botanist's annual reports 1867-date.

Bound also with museum reports 21-date of which they form a part; the first botanist's report appeared in the 21st museum report and is numbered 21. Reports 21-24, 29, 31-41 were not published separately.

Separate reports 25-28, 30, 42-50 and 52 (Botany 3) are out of print. Report 51 may be had for 40c; 53 for 20c; 54 for 50c. Since the 55th these reports have been issued as bulletins.

Descriptions and illustrations of edible, poisonous and unwholesome fungi of New York have been published in volumes 1 and 3 of the 48th museum report and in volume 1 of the 49th, 51st, 52d, 54th and 55th reports. The descriptions and illustrations of edible and unwholesome species contained in the 49th, 51st and 52d reports have been revised and rearranged, and, combined with others more recently prepared, constitute Museum memoir 4.

NEW YORK STATE EDUCATION DEPARTMENT

Museum bulletins 1887—date. O. To advance subscribers, \$2 a year or 50c a year for those of any one division: (1) geology, economic geology, mineralogy, (2) general zoology, archeology and miscellaneous, (3) paleontology, (4) botany, (5) entomology.

Bulletins are also found with the annual reports of the museum as follows:

Bulletin	Report	Bulletin	Report	Bulletin	Report	Bulletin	Report
G 1	48, v. 1	Pa 1	54, v. 1	En 7-9	53, v. 1	Ar 3	52, v. 1
2	51, v. 1	2, 3	" v. 3	10	54, v. 2	4	54, v. 1
3	52, v. 1	4	" v. 4	11	" v. 3	5	" v. 3
4	54, v. 4	5, 6	55, v. 1	12, 13	" v. 4	6	55, v. 1
5	56, v. 1	7-9	56, v. 2	14	55, v. 1	7	56, v. 4
Eg 5, 6	48, v. 1	Z 3	53, v. 1	15-18	56, v. 3	Ms 1, 2	" v. 4
7	50, v. 1	4	54, v. 1	Bo 3	52, v. 1		
8	53, v. 1	5-7	" v. 3	4	53, v. 1	Memoir	
9	54, v. 2	8	55, v. 1	5	55, v. 1	2	49, v. 3
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11	56, v. 1	En 3	48, v. 1	Ar 1	50, v. 1		
M 2	" v. 1	4-6	52, v. 1	2	51, v. 1		

The figures in parenthesis indicate the bulletin's number as a New York State Museum bulletin.

Geology. G1 (14) Kemp, J. F. Geology of Moriah and Westport Townships, Essex Co. N. Y., with notes on the iron mines. 38p. 7pl. 2 maps. Sep. 1895. 10c.

G2 (19) Merrill, F. J. H. Guide to the Study of the Geological Collections of the New York State Museum. 162p. 119pl. map. Nov. 1898. [50c]

G3 (21) Kemp, J. F. Geology of the Lake Placid Region. 24p. 1pl. map. Sep. 1898. 5c.

G4 (48) Woodworth, J. B. Pleistocene Geology of Nassau County and Borough of Queens. 58p. il. 9pl. map. Dec. 1901. 25c.

G5 (56) Merrill, F. J. H. Description of the State Geologic Map of 1901. 42p. 2 maps, tab. Oct. 1902. 10c.

G6 (77) Cushing, H. P. Geology of the Vicinity of Little Falls, Herkimer Co. 98p. il. 15pl. 2 maps. Jan. 1905. 30c.

G7 (83) Woodworth, J. B. Pleistocene Geology of the Mooers Quadrangle. 62p. 25pl. map. June 1905. 25c.

G8 (84) ——— Ancient Water Levels of the Champlain and Hudson Valleys. *In press.*

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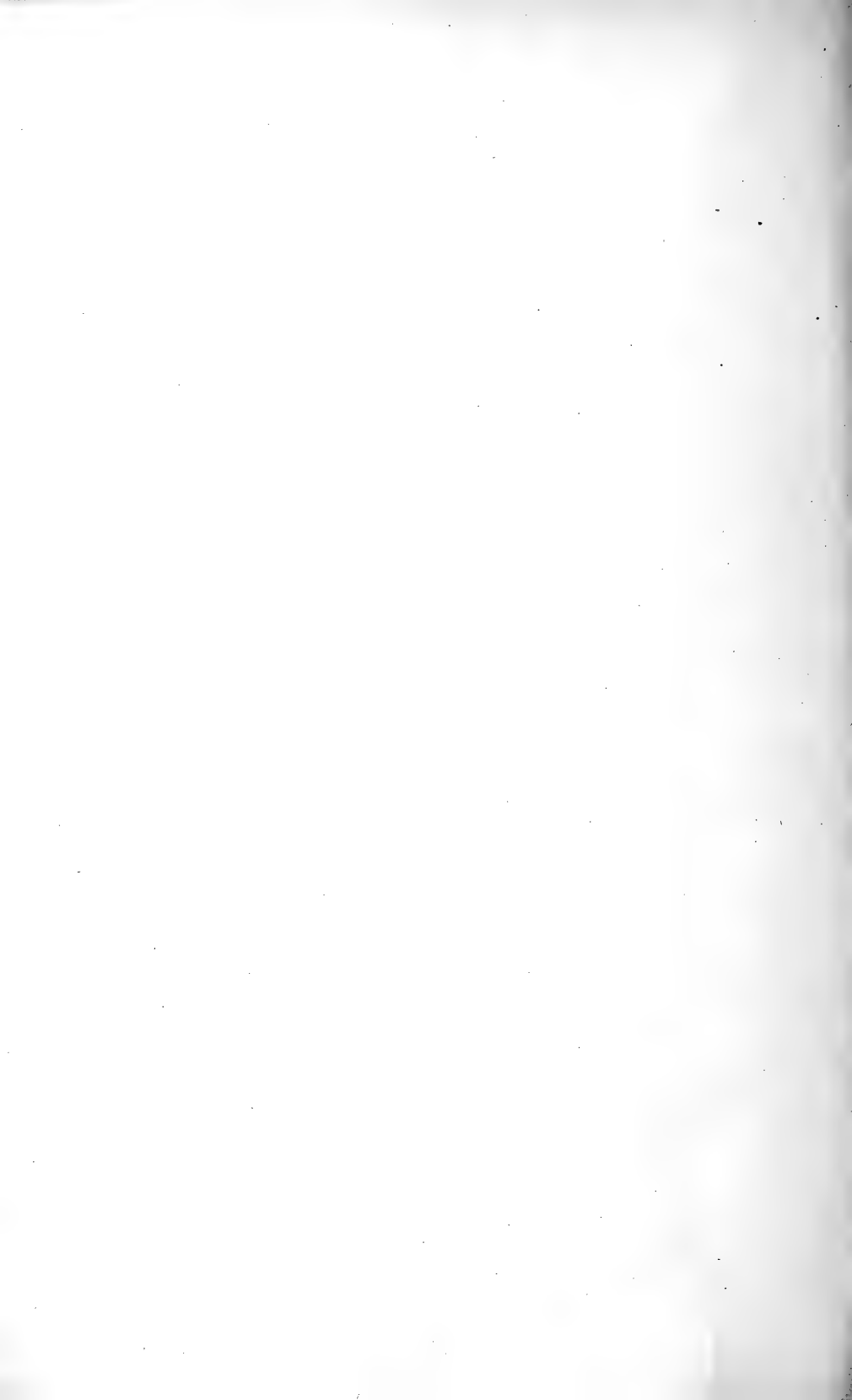
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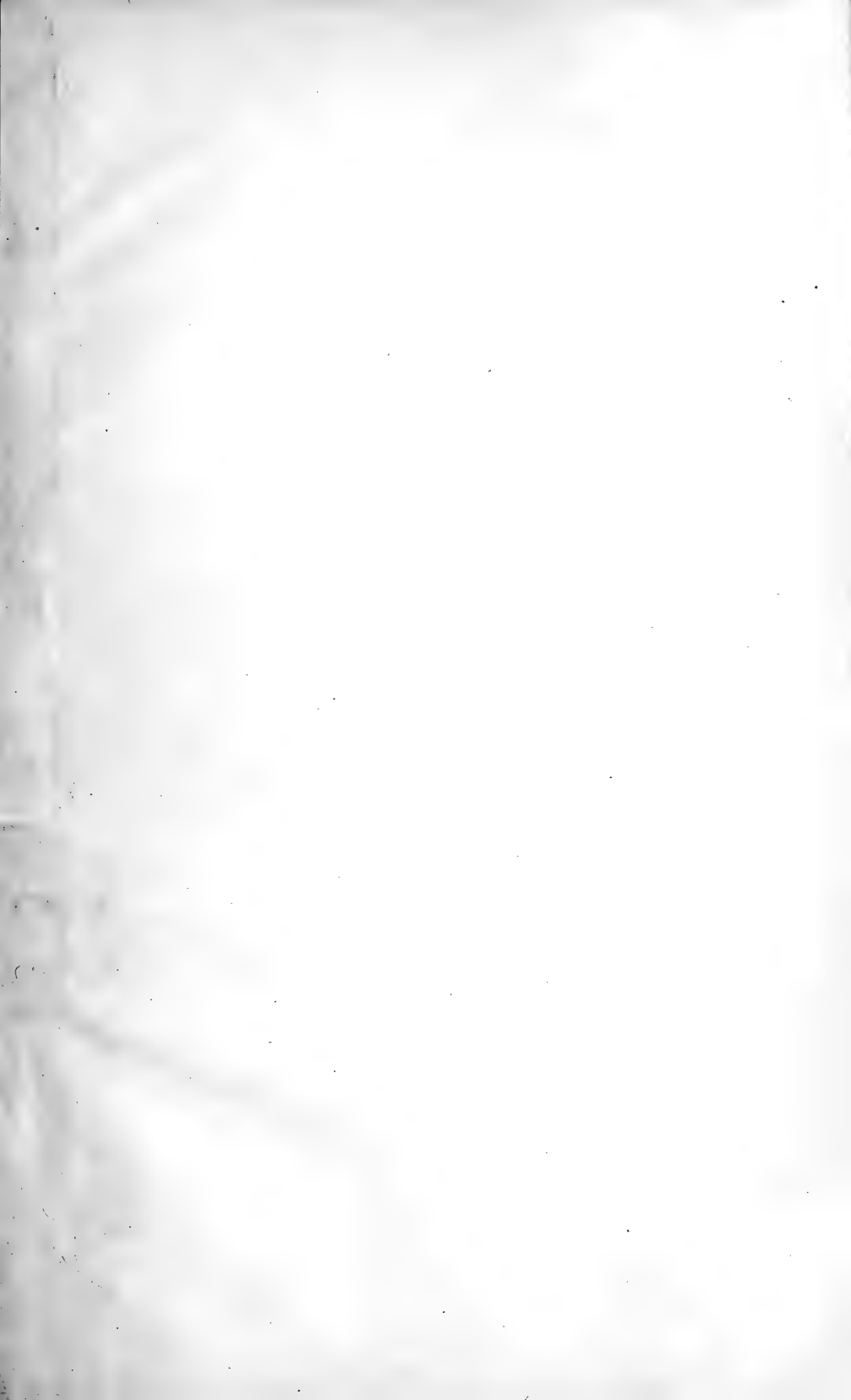
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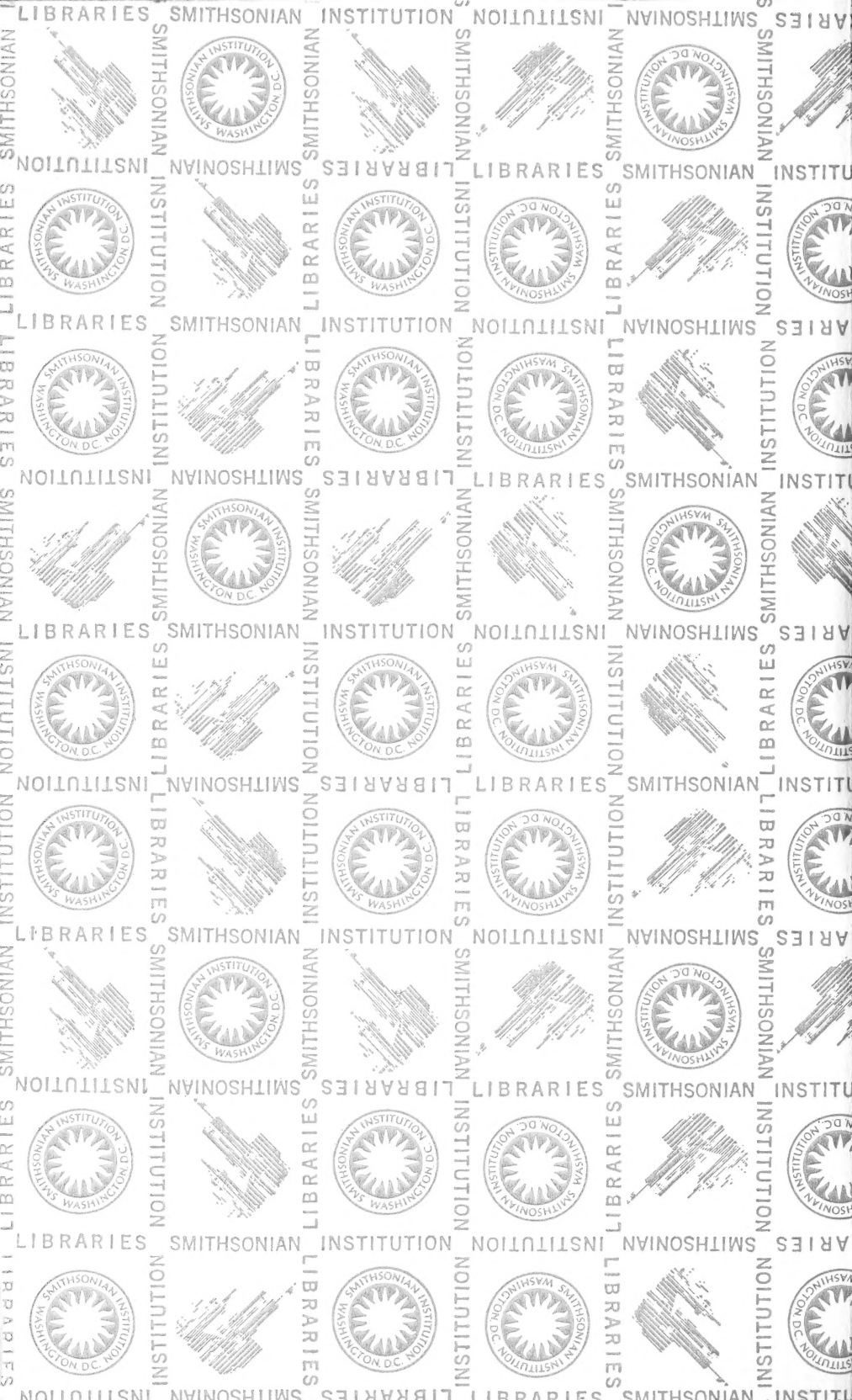
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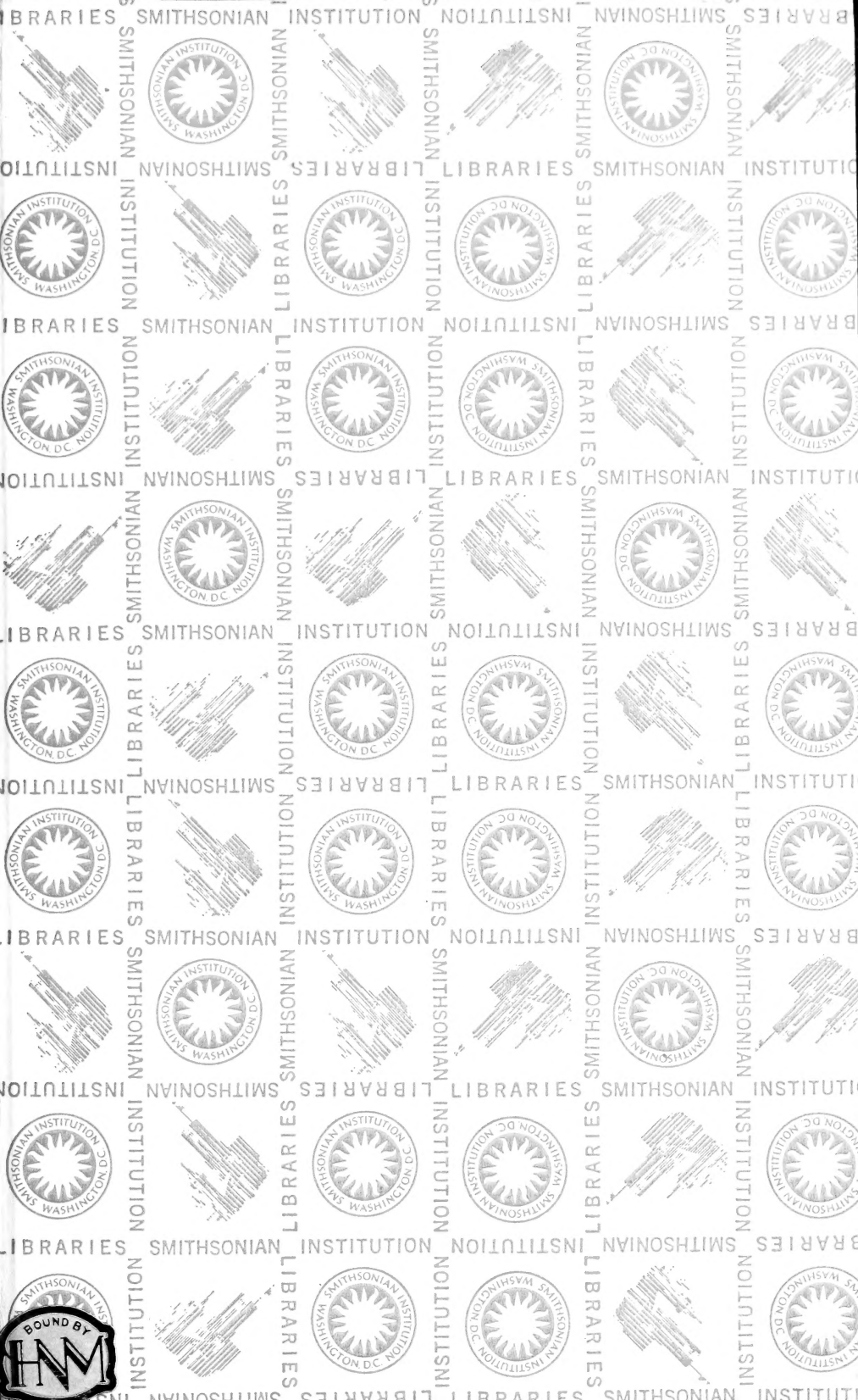
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